

consultants' proposals for the expanded town

A report to the Minister of Housing and Local Government
and Ipswich County Borough Council
by Shankland, Cox and Associates

Ipswich Draft Basic Plan

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Preface

This report is the outcome of the second part of a two-part study of the Ipswich area for which Shenkland, Cox and Associates were commissioned in 1965. The first part of their assignment was to recommend to the Minister of Housing and Local Government an area to be designated as a new town. Their report on this part of the study was published by HMSO in September 1966 (Expansion of Ipswich, Designation Proposals, C2). The second part of the study was to prepare, for the Minister of Housing and Local Government and Ipswich County Borough Council jointly, a draft basic plan for the area recommended for expansion.

In June 1969, after a Public Local Inquiry had been held into objections to a draft Designation Order, the Minister of Housing and Local Government announced that he had decided not to proceed with the designation of Ipswich under the New Towns Act 1965. The draft basic plan is however now published as a contribution to the literature of town planning.

Ministry of Housing and Local Government

This is our second report on the expansion of Ipswich. The first was presented to the Minister of Housing and Local Government in June 1965 and published by HMSO in September. It recommended an area to be designated under the New Towns Act 1965 for the accommodation of 70,000 newcomers together with their natural increase and that of the existing population. Our proposals were widely discussed in Ipswich and surrounding areas.

In accordance with our two-year contract, we went on to prepare a draft Basic Plan for the expanding town. It is presented in this report to our joint clients.

We are grateful to the officers of the Ministry, the Borough Council, and other authorities for the information and advice they have generously given.

The draft plan is based on the sub-regional strategy recommended in our first report. For the convenience of readers who have not studied it, we have included a brief summary in the present volume, which can thus be read on its own as a plan for the major expansion of an established large town.

The draft Basic Plan consists of the Urban Structure Map (fold-out at end of volume) and supporting material. We recommend that the Urban Structure Map be approved as a basis for detailed planning and design.

The supporting material is of two kinds. There are first the projections and assumptions underlying the proposals. Then there are diagrams showing how specific functions or different areas might be organised within the overall structure. When these are worked up in detail it may be necessary to make amendments to the Urban Structure Map.

The plan covers the whole of an expanded Ipswich. But it gives more detail for the expansion areas, which would be almost wholly built in a short period, than for the established town, which would be remodelled over a longer period as opportunities arise. Detailed plans will however be needed for action areas in existing Ipswich where substantial redevelopment is expected in the near future. The most important of these is the central area. Until a Town Centre Map has been approved by the County Borough Council it will not be possible to decide on some of the planning applications that have inevitably been deferred while the implications of expansion were being studied.

The idea of planned growth is now firmly rooted in Ipswich. We believe this draft Basic Plan could provide a framework within which a high quality of administration, design and civic leadership could create not just a bigger but at the same time a better town.

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June 1967

Guide to the report

Part I is a brief summary of our proposals for the sub-region and for the expansion of Ipswich.

Part II describes the people of Ipswich and the likely newcomers, makes projections of the total population and the labour force, and discusses the sources of additional employment.

Part III first explains the general form of the draft Basic Plan for the expanding town, and then deals in turn with the two proposed new districts at Belstead and Bramford, the existing town, the central area and the river, and with the visual structure of the whole town.

Part IV estimates the amount of land required for each activity and discusses the factors governing its location.

Part V puts forward a programme of development up to 1981, sets out a financial appraisal, and discusses problems of management.

The appendices describe in detail the technical studies on which the proposals are based. They include a full report of the social surveys carried out by the Institute of Community Studies.

The words 'the proposed designated area' indicate the area recommended for designation in our report *Expansion of Ipswich - designation proposal*, published by HMSO in 1965. We refer to that volume as 'our first report'.

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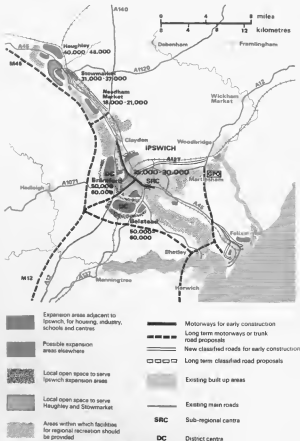
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Proposed Urban Structure Map
foldout at end of book

I Summaries of the two reports

1 The proposed sub-regional strategy

This was put forward in the first report and the area recommended for designation was based on it.



1 A strategy for the sub-region

Our first report considered the proposed expansion of Ipswich against the background of the trends and problems in the sub-region. It concluded that the sub-region was capable of increasing its population from 200,000 to about half-a-million by the end of the century, and that it would benefit from steady growth – provided this was planned within the framework of an overall strategy. The recommended form of development would have two main features –

a Urban areas would be concentrated in a band of major communications, thus making the best use of investment, and helping to safeguard the small towns and the Suffolk countryside from indiscriminate building.

b Within the band there would be a number of physically distinct but closely linked settlements, each with its own workplaces and schools, and some with their own district centres to relieve pressure on the central area of Ipswich.

The report therefore proposed (figure 1) –

i A band of development tangential to the sub-regional centre, extending from south-west of Ipswich along the Gipping Valley.

ii Early improvements in the road system to consolidate this pattern, including a new A45 urban motorway from Blakenham to east of Ipswich.

iii The reservation of lines for motorways linking the sub-region with London and the Midlands.

iv Two new districts at Bramford and Belstead to cater for the immediate expansion of Ipswich.

v An early expansion of Stowmarket with later developments at Needham Market and Haughley.

vi A policy of limited expansions in the other small towns and selected villages, with some new villages.

vii The provision of recreational facilities (country parks, golf courses, picnic places, camping and caravan sites, yacht harbours and launching hard) at selected places in the Gipping valley and on both banks of the Orwell estuary.

The sub-regional strategy was designed to serve the following objectives –

i Continuing economic growth.

ii Choice of employment with convenient journeys to work.

iii A convenient and economical pattern of shopping and service centres.

iv Compact urban forms emphasising the contrast between town and countryside.

v Social integration between the established population and the newcomers.

vi Efficient and economical communications.

vii Efficient and economical engineering services.

viii Optimum use of land.



2 The draft Basic Plan for Ipswich

2 The Ipswich area
Scale: 1 inch to 1 mile

The draft Basic Plan is shown on the fold-out map at the end of this volume. If expansion were carried out according to this plan, the greater part of the additional population of Ipswich would live in the two districts of Belstead and Broomfield to the south and west of the existing town. Here they would be close to the town centre and most of the existing employment areas. The present built-up area would be rounded off on the south-west and would be contained by valleys on the north, south and west and by the heaths on the east. The expanded town would have a planned capacity of about 273,000 people.

A grid of primary roads in the new districts would permit free movement in all directions and would carry bus routes; the grid could gradually be extended into the existing town by road improvements and new links. The spine of the new pattern of communications would be the proposed A46 urban motorway crossing the town from north-west to south-east and linking most of the radial roads outside the central area. The majority of cross-town journeys could then avoid the centre, giving convenient movement between homes and workplaces throughout expanded Ipswich.

The linear form of the new districts would encourage the use of public transport to the district centres and to the town centre. It would also enable everybody to be within walking distance of the open valleys separating the existing town from the expansion areas. Parks and playing fields, the sports centre and a second new general hospital would be sited in these valleys to serve both the older and newer parts of the town. The river could become an important feature of the expanded town.

Each new district would have a shopping and service centre located on the edge nearest to the existing town and adjoining a main radial road. Industrial areas and secondary schools would be closely related to the primary road network, which would enclose residential neighbourhoods free from fast traffic, and with primary schools, local shops, small open spaces, meeting places and some employment close to every home. The layout and landscaping of the two new districts could make them different from each other and from existing Ipswich.

Better road approaches and new car parks would give increased accessibility to the central area, which would be freed from extensive traffic by a box of new and improved main roads around it. Dispersal of some of the factories and warehouses, and provision of additional shopping and services in the district centres, would allow the central area to continue as the main shopping and service centre for the sub-region without drastic changes in the scale and character of its heart.

Planned growth would start with an extension of the Cherry area, followed by the nearby southerly part of

the Broomfield district. As soon as there were enough people in Broomfield to support a new district centre, the main building effort would shift to Belstead. Road improvements in and around the town centre should continue throughout the period of expansion, and the urban motorway and its feeder roads should be given high priority.

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3 People

The essence of a basic plan is the allocation of enough land in the right places for the activities of the towns-people. We need to forecast who the people will be and what they will do. These activities with their complex inter-relationships make up the functional system for which the plan must provide the physical fabric.

In attempting to predict the functional pattern at the end of the plan period we must have some idea of the background, expectations and aspirations of the people – as well as their numbers and composition.

3.1 Numbers

The only population figure stated in our terms of reference is the proposal to bring 70,000 people into Ipswich by 1981. In working out what this means for the basic plan we start with two assumptions –

- i That planned expansion will formally begin in 1968.
- ii That the figure of 70,000 is a target for *all* net migration into Ipswich between 1968 and 1981, whether or not the newcomers are in jobs and houses directly sponsored by the Development Corporation. All development, however financed and organised, will be related to the population and employment targets in the basic plan. It is therefore inappropriate to make any distinction between 'planned' and 'unplanned' migration.

Separate projections have been made of the established population and the newcomers since their age and household composition will be different.

It must be emphasised that these estimates are not predictions of the precise number of people at any given date; they can indicate only the order of magnitude of the future population, based on the best available forecasts of mortality, fertility and marriage rates. Mortality rates generally fall slowly but fertility and marriage rates may fluctuate significantly over a short period in response to changing economic conditions or social customs. Calculations described in appendix B show that the probable error in the 1981 estimates is unlikely to exceed six per cent.

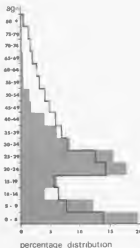
3.1.1 Established population The starting date for the projections of the established population is 1961 – the latest year for which an age/sex analysis is available. We assumed that current rates of immigration would continue until 1968. Thereafter the projection of the established population includes no net migration, because we have assumed this to be covered by the projection of newcomers. There will of course be continuing movement of people into and out of the existing town. This may affect the age/sex composition of the population and hence its rate of natural increase, but we have been unable to allow for this.

The projections are for the established population of the area recommended for designation in our first report. Changes to the outer boundary of the area would make little difference to the figures since most of the population live either in the present County Borough or just outside it.

The method was also applied to the County Borough alone. Our projection from 1961 gave a population of 121,480 in 1986. The Registrar General's mid-year estimate was 121,280. A comparison with the 1986 Census figure is made in appendix B. There were approximately 5,000 people in the proposed designated

3 Age composition of migrant populations

The black line shows the age composition of newcomers to Ipswich likely to result from the recommendations in this report. It is more balanced than the composition of recent migrants to Swindon shown in brown.



area outside the County Borough, giving a total of 128,000 for 1988. Natural increase might bring this to 138,000 by 1978 and 144,000 by 1981.

3.1.2 Newcomers

Estimating the natural increase of the 70,000 newcomers is more difficult than estimating that of the established population. Whereas we know the age/sex composition of the established population we have to forecast that of the newcomers; we also have to forecast the rate of intake.

There is a fair amount of information about the age, sex and marital status of people who have moved to the earlier new towns and town expansions, and the way it has changed over the years. We have adjusted this data to take account of features of the Ipswich expansion likely to be different from the others, e.g. the proportion of homes for sale. The intake population we have assumed for the projections is illustrated in figure 3. It was discussed in appendix C in the first report.

We have assumed that the planned intake of population could start in 1968 and build up rapidly to a maximum rate that would be maintained until 1981.

The estimates resulting from these assumptions are given in table 3.1, and the possible growth of the total population is shown in figure 5. Expanded Ipswich could have a population of about 185,000 in 1978 and 226,000 in 1981.

Both the rate of intake and the age composition of the newcomers may diverge from our assumptions and may fluctuate during the period of planned expansion. Figure 3 shows how the age composition of recent migrants to Swindon differs from that we have assumed for Ipswich, and figure 4 shows how a 'Swindon' pattern of intake would alter the numbers in critical age groups. This brings out the importance of securing the greatest possible balance in the incoming population. It will be necessary for the Development Corporation and the County Borough Council to keep full records of the population, to analyse these frequently, and to make new projections. These will guide them in planning the provision of employment and services, and in deciding policies for population intake.

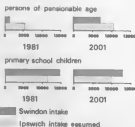
3.1.3 After 1981

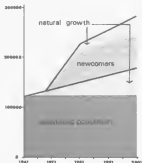
To show some of the long-term effects of a decision to undertake a major town expansion we have extended the population projections to the end of the century. Projections so far into the future are more liable to error than those for the next fifteen years. However, they show that the expansion proposed up to 1981 could produce a total population of 281,000 by 2001. This assumes no further immigration after 1981, though, as we stated in the first report, a continued influx to the sub-region is both likely and desirable.

The draft Basic Plan provides for a total population of about 273,000 in expanded Ipswich. This is likely to be reached well before the end of the century. Further increases – both by natural growth and immigration – could be accommodated in the other expansion areas recommended in the sub-regional strategy (see figure 1). Before the end of the century improved communications and shorter hours of work should have made for easy movement up and down the sub-regional band of development. It should be possible to live anywhere within the urban grouping and enjoy the wide choice of jobs and services that should then be available. We do not therefore think that Ipswich itself need have room to absorb the whole of its natural increase up to the end of the century.

4 Effects of variations in age composition

The composition of the incoming population will influence the number of people in critical age groups for many years. With the composition assumed for Ipswich, natural increase after 1981 would be much smaller than with an intake like that to Swindon.





3.1 Projected population of proposed designated area

	Established population with natural increase	Net migration (newcomers)	Natural increase of newcomers	Total new population (n + m)	Total population (i + n)
	i	a	m	iv	v
1966	128,200	—	—	—	128,200
1976	138,200	42,800	4,800	47,600	185,800
1991	144,200	70,000	10,700	80,700	225,000

3.2 Characteristics

The expansion of Ipswich should be carried out in such a way as to result in the creation of a single community embracing the established population and the newcomers. But if this is to be accomplished the different characteristics and needs of the two must be recognised. They are briefly discussed in the next two sections, and the chapter concludes by considering some of the things that can be done to promote social unity.

3.2.1 Established population Ipswich has been a steadily growing town, doubling its population and more than doubling its built-up area in the last 70 years, but an even higher rate of expansion is now proposed: it is likely to double the population again in about 20 years. While the reason for expansion is the national problem of the South East's growing population, its form should respect those features of Ipswich most valued by the residents, and help to solve the town's own problems.

Though only about half the present population were born in Ipswich, another 30 per cent have lived there for 20 years or more. Thus the great majority are well established. It was partly to throw some light on their attitudes to expansion that we asked the Institute of Community Studies to carry out a sample survey in the County Borough. The method and results of the survey are described in appendix C.

A majority of the people interviewed were in favour of expansion and expected to gain from it. In particular, they hoped for more trade, more work, a greater range of amenities, and a higher standard of social services. About a fifth of the sample disapproved of expansion and could see no advantages in it. And some of those who approved of it feared certain dangers, e.g. more

traffic congestion, insufficient jobs. The plan must show how these dangers can be overcome.

The most popular features of Ipswich are its easy access to London, to the country and to the seaside; its fine parks; its lively shopping centre; and its country town atmosphere. All these — except the first — could be destroyed by ill-considered expansion. Perhaps the most vulnerable feature is the country town atmosphere, especially evident in the busy central area with its narrow winding streets and the intimate scale of its buildings. We propose that redevelopment should maintain the present scale and character in the heart of the town, and that expansion should take place in physically distinct built-up areas separated by green spaces. The proposed sub-regional strategy of concentrating development in a narrow band, with limited and closely controlled expansion elsewhere, would help to preserve open countryside, unspoiled coast, and attractive small towns and villages close to Ipswich.

During the course of expansion more emphasis should be given to the attractive features of Ipswich by, for instance, improving the river and making a sharper edge between town and country.

A greater population will be able to support more amenities and these should be planned for. While expansion will bring more traffic, it will also bring the opportunity to build new roads and improve existing ones, and to alter the pattern of traffic flow, so as to reduce congestion rather than increase it.

As well as recording people's opinions about the good and bad features of Ipswich the social survey obtained a number of facts that have been of value in designing the expanded town. For instance, as many people travel to work on two wheels as on four, and four-fifths of all journeys, including those on foot, take 20 minutes or less.

3.2.2 Newcomers It is the Government's intention that the great majority of the 70,000 newcomers should be Londoners, so far as possible those in housing need. But, as in the earlier new towns, there will be a proportion of non-Londoners: some who move into newly built houses not under the control of the Development Corporation or the County Borough Council, and some who are allocated houses because they are key workers who could not be found in London.

Our knowledge of the newcomers is clearly of a different nature from our knowledge of the established population. We could not interview the people who will be coming to Ipswich – though the Institute of Community Studies has visited a sample of people in London who need a new home and who have said they are interested in moving to a new or expanding town. Their names were taken from the register of the Industrial Selection Scheme operated by the Greater London Council in conjunction with the Ministry of Labour. These interviews are described in appendix C and referred to in the text as the I.S.S. sample. Apart from this, we have had to draw on the experience of earlier new and expanding towns in the South East.

The most striking difference between the newcomers and the established population will be in their age composition. The newcomers will contain a higher proportion of young married adults with young children and lower proportions of older people and young unmarried adults. This imbalance results in a high rate of natural increase and in rapid fluctuations in the numbers in each age group. In the first report we stated that the people moving to Ipswich would have a more balanced age composition than those moving to the earlier new towns, provided that –

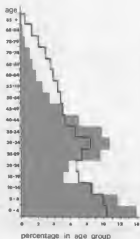
- i A higher proportion of homes are built for sale
- a Homes are offered to retired people from the start of expansion

The population projections assume that these policies will be operated. Table 3.2 shows the estimated numbers in each of the main age groups in 1978 and 1981. These figures are the basis for estimates of the demand for homes, schools and other facilities described in later sections of the report.

One advantage of expanding an established town with a normal population structure is that the total population will have a more balanced age composition than that of an entirely new community. Table 3.3 shows the estimated numbers in the main age groups in expanded Ipswich. Figure 6 compares Ipswich in 1981 with Stevenage fifteen years after designation. The demand for facilities serving the whole area – e.g. jobs, maternity beds, further education, will not fluctuate as much as it does in a completely new town. But the population of the new districts will have the imbalance characteristic of all migrant populations. Even if some Ipswich people are attracted to the new districts, in the early stages of expansion they are also likely to be predominantly young families or retired people. But because of the close links between the new and old parts of the town, movement between them should increase over the years, and the new districts should attain a normal population structure in a shorter time than the new towns. The more varied is the housing pool in the new districts, the quicker this process will be completed.

The social class composition of the newcomers will depend upon two factors –

- i The kind of jobs available, e.g. the extent to which



6 The population after fifteen years of growth

The black line represents the estimated total population of Ipswich in 1981. Because of the larger established population it will be more balanced than that of Stevenage in 1961 after a similar period of growth. This is shown in brown.

3.2 Projected numbers in each age group: newcomers

	1978		1981	
	Number	%	Number	%
0-4	7,000	54.6	10,200	12.6
5-9	8,400	51.6	8,800	12.2
10-14	3,100	6.6	7,100	6.6
15-19	2,200	4.7	4,500	6.6
20-24	17,800	38.1	28,200	34.6
25-29	7,900	16.9	14,800	16.1
30+	3,900	7.4	6,300	7.6
Total	47,000	100.0	90,200	100.0

3.2 Projected numbers in each age group: total population

	1978		1981	
	Number	%	Number	%
0-4	18,800	50.7	23,300	50.4
5-9	17,000	5.2	22,800	50.0
10-14	14,200	7.3	18,500	6.4
15-19	12,300	6.6	18,700	7.0
20-24	53,100	28.3	66,400	29.6
25-29	36,800	21.0	44,700	18.9
30+	26,800	16.1	33,400	14.8
Total	186,000	100.0	236,000	100.0

London offices are attracted to Ipswich, the a source of research and development in new factories.

ii The attractiveness of the expansion areas to people of a variety of income groups, tastes and interests.

The basic plan can help to ensure social diversity by providing suitable sites for a wide variety of industry and offices, and by including residential areas with different densities, standards and environments.

Figure 7 shows the proportions of people in different social classes in a typical earlier new town, and in the I.S.S. sample. It also shows the proportions in Ipswich and in England and Wales. The I.S.S. sample has the most unskilled and semi-skilled workers and the new town the fewest. The new town has the highest proportion of professional and managerial workers and the I.S.S. sample the lowest. Ipswich at present has a similar social structure to the whole country, but with more clerical and skilled workers and fewer semi-skilled and unskilled.

The proportion of newcomers who come from the I.S.S. register will depend on—

i How many established employees move to Ipswich with their firms; vacancies will be filled so far as possible through the Industrial Selection Scheme.

ii How many additional workers are recruited from outside Ipswich by existing firms in the town; these recruits will also be obtained so far as possible from the I.S.S. register.

In both cases the extent of recruitment through the I.S.S. will depend upon the nature of the jobs to be filled. Furthermore, the social composition of I.S.S. applicants coming to Ipswich will reflect the needs of employers rather than the composition of the list itself. But if there is a shortage of skilled workers, it is expected that employers will accept unskilled and semi-skilled workers for training. This will ease both the Ipswich labour shortage and the London housing problem.

The I.S.S. sample throws some light on the expectations and apprehensions of some of the people likely to move to Ipswich. Most of those on the register at

present live in poor housing, many sharing dwellings. There are a few existing council tenants. The opportunity of getting a better home will be their main incentive for moving to Ipswich, but they will also want to be assured of a secure job at good wages. One in five of the people interviewed said they would rather have an older council house at a lower rent, if one were available, than a new dwelling. But a quarter would like to buy a house immediately and another half hope to become owner-occupiers later. If their present household incomes were maintained after the move many of them might achieve the ambition.

People moving with their employers will in general have been better housed in London than the I.S.S. sample. Some will be owner-occupiers already and a higher proportion can therefore be expected to buy homes in Ipswich.

Most of the newcomers will be seeking a more spacious, cleaner and quieter environment than they have in London. Some will miss the great variety of easily accessible shops, amusements, parks and other facilities. While London is bound to remain unique in this respect, the newcomers will expect the provision of some such amenities to keep pace with the provision of houses and jobs. This will help them to settle down quickly in Ipswich.

Newcomers may miss relatives living close to them in London, though a high proportion of the I.S.S. sample said that relatives would move to the same place if houses and jobs were available for them.

3.3 Social unity

An important objective is that both the new and established populations shall feel that the whole of expanded Ipswich is their town. The draft Basic Plan has been designed to assist this objective in several ways—

i By maintaining Ipswich central area as the principal shopping and service centre of the sub-region: here people from all parts of the town would meet in the larger and more specialized shops, the cinemas, theatres and other entertainments, the Civic College and many buildings serving the whole area.

ii By providing good communications from all the existing and new residential areas to all the existing and new industrial and other employment areas; this would help to create a single labour market, and give new and established residents opportunities to work alongside one another.

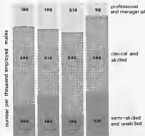
iii By locating the main open spaces between the old and new parts of the town. The valleys of the Gipping and Baldoak Brook would physically separate existing Ipswich from the new districts at Belstead and Blenheim, but would be used for recreation by the whole town.

iv By siting the two new district shopping centres and some of the new secondary schools on the edge of the expansion areas nearest to Ipswich where they might be used by some people living in the existing town.

These features of the plan would become more effective as the expansion proceeds. In the early days the achievement of social unity between people with different backgrounds, problems, aspirations and aspirations will result more from good management than from the nature of the plan. The aspect of expansion is discussed in chapter 22. Employers, trade unions, and voluntary organizations of all kinds can play a major part in bringing established and new inhabitants together.

7 Social classes

The I.S.S. sample alone cannot be taken as a guide to the social structure of the newcomers. Harlow, a typical earlier new town has more professional and managerial workers and fewer semi-skilled and unskilled than the national average.



4 Functional requirements

4.1 General

Chapter 3 has described the people for whose activities the plan must provide. The complete pattern of activities is complex and the plan must consider their inter-relationships. But each main activity corresponds to a particular land use: education to schools and colleges, outdoor recreation to open space, and so on. Furthermore, most of the larger land uses are the responsibility of the local authority and other statutory bodies, and the provision to be made is determined by national standards and local policies. It therefore follows almost directly from the total population or the numbers in different age groups. So far as possible the proposals have been agreed with the appropriate authorities. But national standards and local policies may change in the future as they have in the past. The plan must be flexible enough to allow for variations.

The land requirement for functions provided by private effort – e.g. shopping, entertainment, churches – is more difficult to estimate, and cannot be agreed in advance, but most of these are small land uses and can be accommodated without difficulty.

The amount of land needed for each use and the general considerations governing its location are described under each heading in part IV. The way in which these pieces of the jigsaw have been combined in the overall plan is discussed in part III.

One important exception to the straightforward equation of activity and land use is work. Some work is simply an aspect of the town's other activities: one person's shopping, travel or recreation is another person's work. Its land allocation is that of the particular service. But other work is the basis of the town's existence, and requires separate land allocations. These can only be made after estimating the size of the labour force and its distribution between different sectors. This is therefore considered in section 4.2. The land requirements of industry and offices can then be dealt with alongside other uses in part IV.

4.2 Work

It will be the responsibility of the Development Corporation, working with the County Borough Council, the Board of Trade and the Ministry of Labour, to ensure that increases in population and employment are balanced throughout the period of expansion. Land and services must be available so that mobile industry and offices can be attracted to Ipswich. The granting of Industrial Development Certificates and Office Development Permits should be related to the planned growth of the town. But securing balance is not simply a matter of allocating houses only to people with a job in Ipswich.

Many homes will have more than one wage earner; some jobs will be filled by people living outside the expanded town; there will be fluctuations in employment in different sectors; as the town grows, labour may become more mobile between industries and occupations. The Corporation will therefore need adequate records of the changing supply of, and demand for, labour, and methods of relating these to the programme of house, factory and office building.

For the purpose of preparing the basic plan it is necessary to make forward estimates of the labour force to ensure that sufficient land is reserved for industry and other employment uses.

4.2.1 Supply of labour The Ministry of Labour has made projections to 1980 of the proportions of men, single women and married women in each five-year age group who are expected to be at work. These activity rates are national averages, but it is expected that they will apply generally in the expanded town.

The proportion of married women at work in Ipswich is at present somewhat below the national average, but it is rising. We have assumed that by 1976 the difference will have disappeared.

Applying the Ministry of Labour activity rates to the estimated population derived from the projections gives the following numbers of workers living in the proposed designated area –

	Number	Proportion of total population generally employed (%)
1961	52,808	43.3
1976	81,808	44.9
1981	87,708	43.4

The proportion of the total population at work varies very little because although more women will probably be occupied, there will be a higher proportion of dependent children. The numbers of single and married women and of young people under 20 expected to be seeking work are given in appendix E.

We must also allow for movements of workers into and out of expanded Ipswich. This is inevitably more speculative. Either new towns are near other major employment centres and their experience is therefore relevant. The most comparable of the expanding towns is Swindon. Changes in commuting there between 1961 and 1961 are described in appendix E. As at Swindon, commuting into and out of Ipswich is likely to increase, but inward travel is likely to increase more than outward travel. This is because –

1. In the sub-region outside Ipswich the population is likely to grow faster than the number of jobs.

ii The numbers employed in agriculture may continue to fall, as more villages may seek work in Ipswich
 iii Workers in the sub-region not at present employed may be attracted by the growing opportunities in Ipswich.

Our estimates are –

	In	Out	Net Movement
1966	10,000	3,000	+ 7,000
1976	16,000	6,000	+ 10,000
1981	20,000	8,000	+ 12,000

The total numbers expected to be working in the proposed designated area are therefore –

	Occupied residents	New started movement	Total	Increases over 1966
1966	95,000	+ 7,000	102,000	—
1976	92,000	+ 11,000	103,000	+ 31,000
1981	98,000	+ 14,000	112,000	+ 50,000

4.2.2 Demand for labour The additional jobs needed for the growing population will come from three sources –

- i Expansion of manufacturing firms already established in Ipswich. Their capacity to increase employment is one of the advantages of expanding an existing town rather than establishing a new one
- ii Factories and offices moving to Ipswich in the course of planned expansion
- iii Expansion of local and sub-regional services to cater for the increased population.

Categories (i) and (ii) provide the economic base of the town; the income generated by these basic activities support the growth of town services (iii). But employment in categories (i) and (ii) – existing firms and town services – is largely outside the control of the Development Corporation, whereas employment in category (iii) – new factories and offices – is a direct result of planned development. Our method is therefore to estimate the numbers likely to be employed in existing firms and town services, and to subtract these from the total labour force to find the number of jobs required in new factories and offices.

i **Established industry** In our survey of manufacturing industry employees were asked to estimate their additional labour requirements. Their replies indicated a need for some 2,000 extra employees every five years. This compares with an increase of 1,400 in the five years 1955–1964. Given a generally high level of economic activity, a higher rate of growth is to be expected, since in recent years expansion has been held back by a shortage of labour which the planned growth of population should overcome. It is possible that the improved communications and greater variety of industry resulting from town expansion will stimulate further growth of established firms beyond their present expectations. We have not allowed for this. Established factories could absorb about an eighth of the additional labour force up to 1981. But during the same period there might be a fall of up to a thousand in the numbers employed in agriculture and extractive industries. Employment in existing enterprises is therefore expected to be –

1966	26,000
1976	29,000
1981	31,000

ii **Local and sub-regional services** Methods described in appendix E give the following estimated numbers in service trades –

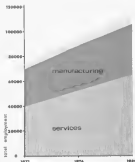
1966	36,000
1976	52,000
1981	65,000

Services could therefore absorb almost three-fifths of the increase in the labour force up to 1981.

Adding together the estimates of increased employment in existing factories and local services, and subtracting these from the estimated total labour force, gives a residual estimate of 16,000 new jobs to be provided elsewhere by 1981.

The additional employment can be in factories (together with their associated offices and research establishments) or in separate offices and research establishments that may wish to relocate in Ipswich. The G.P.O. Research Station to be built at Martlesham may have some of its staff living in Ipswich. The town has already attracted some offices with a national or regional function; it may be expected to attract more as the expansion proceeds and as pressure to leave London builds up. It is difficult at this stage to estimate the likely movement of offices though the authorities will no doubt seek to secure as many as possible. While providing a variety of sites for offices of different types the plan must also allocate enough industrial land to allow the whole of the new basic employment to be in factories should this be necessary. The quantities and locations of land required for industry and offices are discussed in chapters 12 and 13.

It is not possible to give the usual breakdown between manufacturing and services (secondary and tertiary employment), because basic offices, i.e. those with a national or regional function, may fall into either the manufacturing or service sector, according to the nature of their activity. We expect the proportion in services to be between 59 per cent and 67 per cent in 1981.



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5 The whole town

The Urban Structure Map (fold-out) shows the broad pattern of land use and communications in an expanded Ipswich. It is intended as a framework within which the expansion areas can be rapidly designed and constructed, while existing Ipswich is progressively remodelled, and the whole works as one town. The Urban Structure Map provides for a population of about 273,000; this is the planned capacity of Ipswich. It is made up of—

- 121,000—proposed Belstead and Bramford districts
- 5,000—proposed Chantry extension
- 3,000—proposed Whitton extension
- 18,000—new residential areas with planning consent (mainly Stoke Park)
- 126,000—existing population of proposed designated area. We assume this will remain much the same—reductions in the average number of persons per dwelling and any 'overspill' from renewal areas being balanced by new residential building in the central area and on infill sites elsewhere.

A population of 273,000 could be reached well before the end of the century (see 3.1.3).

The draft Basic Plan thus envisages a town more than twice as big as present day Ipswich. It would also have a rather different shape and character. At present only 1.8 per cent of the 121,000 people in Ipswich live south and west of the river Gipping/Oreall. The Urban Structure Map provides for 54 per cent of the population of the expanded town to live south and west of the river, on the side with the greatest accessibility from London, the Midlands, and the rest of East Angles.

8 Ipswich: present town structures

Ipswich at present has a concentrated employment pattern and only one main shopping and service centre.

10 Ipswich: future town structures

After expansion the town will have a more dispersed pattern of employment and three major shopping and service centres.



Ipswich would have a looser and more flexible structure with greater dispersal of social and economic activity and a better system of cross-town communications (figures 9 and 10). The concentration of activity in the central area and along the river valley would be greatly reduced. Instead of only one major shopping and service centre there would be three, the central area being supplemented by the Broomfield and Balesard district centres. New industrial areas would be well distributed along the western and southern edges of the town in similar positions to the post-war industrial development at Nacton on the east, where there would be further expansion. No further industrial development is recommended in north and north-east Ipswich because of the difficulties of disposing of effluent and of improving the road network in that sector of the town.

The communications pattern would be gradually transformed from the present predominantly radial arrangement to a rectilinear grid fairly evenly spaced throughout the new and existing districts (figures 11 and 12). The spine of the new road pattern would be the proposed A45 urban motorway running across the town from north-west to south-east and passing just south of the town centre. This road would take through traffic from Felixstowe to London and the Midlands, and parts of it would also take through traffic on A12. But its main purposes are to link the existing radial roads on the west, south and east, enabling traffic to move between them without entering the town centre; and to provide a link between the limbs of the road network in the expansion areas south-west of the motorway and the

existing town north-east of it. While being part of a national and regional trunk road, the urban motorway would also be a vital link in the primary network of the expanded town.

These changes in the structure of Ipswich would not lessen the significance of the central area. Indeed, they are essential to free the centre of extraneous traffic and incidental activity so that it can concentrate on its major function as the higher order centre for the whole of Ipswich and its sub-region. The new district centres would be of a lower order, but as the population grows and the new communications pattern is established, there would be advantages in locating some sub-regional activities in or near the new district centres. For example, the plan shows a second new district general hospital adjoining Broomfield district centre.

The draft Basic Plan gives the greatest detail for the expansion areas that are to be built largely as a continuous operation. Our proposals for them are described in chapter 8. A general policy for improvements in the existing town is discussed in chapter 7. The impact of expansion will fall most heavily on the central area – the key to the unity of the expanded town. It is there that careful planning and programming are most needed. Preliminary proposals for the town centre are described in chapter 8. The river will need special treatment if it is to make its full contribution to the character of expanded Ipswich. Some proposals are put forward in chapter 8. Part III concludes with a broad policy for the visual structure of the whole town.

11 Existing regional roads

A12 and A45 both use the northern ring road through residential areas

12 Future regional roads

These are planned to avoid cutting residential areas wherever possible. The section of the proposed A45 Urban Motorway over the dock would also form part of A12 and would replace the present northern ring road.

Cambridge



11

12



6 Two new districts

13 Relative quantities of land required for the two new districts

These were later adjusted when local topography was taken into account.

6.1 General form

The first report proposed that the expansion of Ipswich should be mainly in two new districts, each with 50–60,000 people, south and west of the present town.

6.1.1 Location

The general location of this expansion area was determined by three requirements –

- i To fit in with the sub-regional strategy summarised in chapter 1 of the present report.
- ii To have good access to the existing town and especially to the central area.
- iii To exploit spare capacity and economical extensions of roads and engineering services.



14 Theoretical town diagram

This represents an "ideal" relationship between the required areas, to satisfy the broad sub-regional strategy and the stated planning objectives. The advantages of this pattern are explained in the following diagrams.

6.1.2 Land requirement In proceeding from these proposals to the draft Basic Plan we started with the estimated land requirement stated in the first report and divided it broadly between the principal uses (figure 13). The residential area is gross, i.e. it includes provision for primary schools, local open space and other services closely associated with homes. The relationship between gross and net density is described in appendix F. The area for district centres includes provision for shops, car parking and all other uses that may be located there.

6.1.3 Objectives The aim of the plan is to arrange these areas in relationships to one another that best serve the economic and social activities of the townspeople. The arrangement should contribute to the following objectives –

- i **Mobility** To minimise the amount of travel needed for the town to function efficiently, but at the same time to make necessary journeys as rapid and convenient as possible. In seeking to achieve this objective it must be recognised that different types of journey have different requirements. People travelling to workplaces that attract large numbers at peak hours, such as industrial areas and the town centre, should be encouraged to use public transport by making it as cheap and convenient as possible, even when many more people have cars than in the early years of expansion. Young children, mothers pushing prams, and old people should be able to reach local services safely on foot. Journeys in search of recreation will become increasingly varied and increasingly by car, demanding free movement in all directions. The carriage of goods between industrial and commercial undertakings and their supplies and markets must be given special consideration. So must traffic to and from the ports.

- ii **Coherence** To create a coherent structure, functionally and visually; the plan should work – and be seen to work.

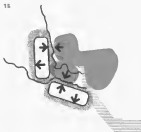


- iii **Urbanity** To preserve the contrast between town and countryside, and provide a basis for urban design of a high order. People will expect a town that is not just convenient, economical and orderly – but beautiful as well.
- iv **Flexibility** To provide some flexibility for future changes in the volume and nature of activities.
- v **Variety** To give choice to residents in the selection of home, environment, workplace and services, and to industrialists in the selection of sites.

6.1.4 Concept The objective of mobility, coherence and urbanity all suggest a compact built-up area; the need for flexibility suggests that those uses which may expand to an unpredictable extent or at an unpredictable rate should be on the edge of the built-up area. These considerations, together with the approximate positions for the two districts indicated by the sub-regional

15 Open space diagram

The main open space is concentrated in the valleys on the edges of the new districts where it is close to the residential areas but does not fragment them. Open space on the inner edges is accessible from the established town, that on the outer edges defines the urban area.



16 Secondary schools diagram

Secondary schools can have adjacent playing fields and a green setting on the edge of the districts. They can have better educational facilities if paired.



17 Industrial areas diagram

Industry is mainly located in estates on the edge of the town – to avoid concentration of traffic, to reduce the risk of nuisance to residential areas, and so that each can expand without disturbing other urban uses. They will have good access from A12 and A45.



18 District centres diagram

The two district centres would be located on the inner edges of the districts. The main reasons are –
a. They would be on the lines of communication from all parts of their districts to the town centre.
b. There would be room for expansion of car parks and buildings.
c. Major uses such as a hospital and a college of further education could be located close to the district centres.



strategy, lead to the concept shown on figures 14 – the theoretical town diagram. The following diagrams illustrate the reasons for the proposed location of each main use.

The basically linear form of the residential cores would permit the provision of relatively economical bus services. The residential cores would not normally be wider than one mile so that most homes would be within a short distance of the surrounding open space (figure 15). Secondary schools would be on the edge of the districts, their buildings being part of the built-up area and close to the homes they serve, and their playing fields forming part of the major open space (figure 16).

Industry would be mainly in estates on the outer edge of the districts (figure 17). Here industrial areas would have space to expand; goods traffic could reach the regional roads without passing through the town; and journeys to new factories would be outwards, tend-

ing to counter-balance the inevitably heavy movement into the town centre. There should be several medium-sized industrial areas, in contrast to the single large industrial estate in some of the earlier new towns, and the scatter of industry in many older towns. This proposal strikes a balance between the advantages of dispersal – spreading traffic, bringing industry within walking distance of many homes; and concentration – easier estate management, industrial linkage, common services, economical public transport.

The district shopping centres would be located on the inner edge of the built-up area for reasons explained more fully in section 6.2 (figure 18).

The broad design concept has to be fitted to the actual site to produce an outline plan sympathetic to the subtleties of the Suffolk countryside and exploiting the highlights of the landscape to create unique visual features in the future town.

6.1.6 Site The proposed site broadly describes an arc centred on Ipswich and running from Little Blakenham in the north-west to the Orwell estuary in the south-east. The land form is dominated by two valleys – those of the Gipping-Orwell and Belsted Brook (figure 19). The main road from London crosses both these valleys at right angles, and divides the expansion area into two equal parts with strikingly different landscapes. North of A12, the site slopes almost continuously but gently from Burstall Village towards Ipswich, while east of A12 there is a considerable area of flat land broken only by the relatively steep northern slope to Belsted Brook and the more gentle eastern slope to the Orwell. The Bramford district would thus occupy an east-facing slope overlooking Ipswich, while the Belsted district would be largely on flat land with an edge near the northern slope. The southern edge begins to fall away to Tattingstone Brook which is a tributary of the Stour.

The land form and its geological structure are such that both valleys are subject to flooding in times of heavy rain. This creates problems in Ipswich, and these are discussed in chapter 9. It also means that the valley bottoms in the expansion area are unsuitable for building. Elsewhere no structural problems are foreseen.

The dominant features of the site are shown on figure 20 in addition to the floodland. They include the existing villages of Bramford, Burstall, Sproughton, Washbrook, Capdock, Belsted, Wherstead and Freston, and industrial buildings near Sproughton. The railway line cuts the expansion area both in the north and the south, and there are overhead power lines, especially in the north-west where they dominate the skyline. To the south, mature

woodlands create a softer skyline as well as forming pleasantly enclosed pockets of land shielded from the coastal winds.

6.1.6 Fitting the concept to the site Some of the physical characteristics of the site are sufficiently strong to model the general shape and extent of the proposed districts. The most important of these is the land form itself. By locating the expansion area largely within the catchment of the two main valleys it is possible not only to contain the town visually as many Suffolk towns are contained by their valleys, but also to design an economical drainage system. Other physical features strong enough to limit the expansion are the floodlands, the 400 kv overhead transmission lines on the north and the dense woodlands in the south. Figure 21 shows how these combine with the A12 and the Orwell itself to determine the broad extent of the town.

The design concept is then adjusted further by finding suitable sites for uses with special requirements. Industry and playing fields both need relatively flat land, and industry should wherever possible be screened by mature woodlands. Where existing woodlands are inadequate for this, new ones are recommended.

The district centres also require carefully selected sites if they are to form the visual focus of their districts, and be at the focus of communications to the existing town. Uses such as a regional sports centre and district general hospital would serve the whole expanded town so they are located between existing Ipswich and the new districts.

19 Land form



20 The main existing features in the expansion area

Bramford is crossed by overhead power lines converging on the sub-station at Bullen Wood in the north-west. To the east, the best sugar factory and other industries lie between Sproughton village and the railway. Balstead is crossed by only one power line and the adjacent railway which is largely in cutting. Woodlands dominate the area south of A12 and Balstead Brook.



21 Location of new districts

The improved trunk road to London would separate the two districts. The position of Bramford district is fixed by this, and by Balstead Brook, the two 400 kv overhead lines, the Gipping and the villages of Bramford and Sproughton. Balstead district would be contained by the overhead lines in the valley, the Orwell and the major woodlands to the south.





22 Road patterns: radial to grid

The present radial road pattern in the existing town would eventually be changed. A grid of roads would serve the districts, link them to the existing town, and provide feeders from the expanded town to the new regional roads.

§ 1.7 Structure roads and neighbourhoods This pattern is given an internal structure by the primary road network linking the different uses with each other, with the existing town, and with the regional road system. This should take the form of a rectilinear grid spaced fairly evenly throughout the expansion area, thus permitting easy movement in all directions. The grid would connect with radial roads to the town centre, and could eventually be connected to a similar grid created by road improvements and new links within the existing town (Figure 22).

A road grid gives the plan a measure of flexibility since the network is not related to a fixed pattern of activities but is rather designed as a framework that can absorb changes in the amount and intensity of different uses.

The main roads would divide the districts into areas within which good living and working conditions could take precedence over traffic flows. Each industrial estate and secondary school campus would be wholly within one of these 'environmental areas'.

Within the residential core we describe the environmental areas as neighbourhoods—a word in common use that was readily understood by people interviewed in the social survey. Clearly there is a direct relationship between the dimensions of the road grid and the size of the neighbourhoods. Should the dimensions of the grid be determined mainly by traffic considerations or mainly by the desirable size of neighbourhoods?

It has been customary in designing new towns and extensions to determine the size of neighbourhoods by the population required to support various local services, most frequently a primary school, and to adapt the road network to the neighbourhood pattern. This approach has a number of disadvantages—

1 Various services require the support of differing numbers of people.

2 An individual service may in the future need the support of a smaller or larger number of people than at present owing to changes in social requirements and methods of providing for them.

3 Because of rapid changes in the age composition of

a recently settled population, the requirements of a given area for some local services also change rapidly.

4 Increasing mobility due to greater car ownership means that people do not necessarily use the local service establishment closest to their home.

These considerations suggest that a pattern of self-contained neighbourhoods is not the best basis for the convenient and economical provision of local services. Whatever the size of neighbourhoods, adequate social provision will increasingly require safe and pleasant pedestrian access between them. This access should normally take the form of wellways passing under the roads of the primary network. These are also necessary to give access from the residential areas to the open space, secondary schools and industrial estates on the edges of the districts. Since these pedestrian links must be provided—whatever the pattern of neighbourhoods—it seems best to plan the primary road grid for the most efficient and economical movement of traffic throughout a district of 80,000 people, and to allow this to be the main determinant of the pattern of neighbourhoods.

Nevertheless, the main roads may be physical and psychological barriers to movement on foot between some parts of adjacent neighbourhoods. It is therefore still desirable that each neighbourhood should have as wide a range of services as possible. The preferred dimension for the primary road grid is one mile by half a mile (see section 19.1.4); this would enclose neighbourhoods with about 14,000 people, if they were entirely developed for residential use at the recommended average density. Such neighbourhoods would support a wide range of services, including a choice of primary schools. However, when the network is set out on the actual site the theoretical pattern is modified by physical features: e.g. contours and woodlands, existing roads and railways; and by planning requirements: e.g. the location of district centres and industrial areas. Consequently, the neighbourhoods shown on the Urban Structure Map vary in population from under a thousand people to over ten thousand (table 3).

This variation in size provides opportunities to vary the

§ Size of neighbourhoods

(Bromford, Solihull and Chantry extensions)

Proposed ultimate population (see groups)	Number of neighbourhoods	Total population in each district group	Per cent of population of expansion areas
under 1,000	2	1,300	1.0
1,000—	3	4,100	3.3
2,000—	3	6,600	5.2
3,000—	1	3,600	3.1
4,000—	3	13,700	10.9
5,000—	2	10,700	8.6
6,000—	2	12,800	10.2
7,000—	2	16,100	12.9
8,000—	1	8,000	6.4
9,000—	3	27,700	22.0
10,000—	1	10,800	8.6
11,000—	1	11,400	9.0
Total	26	126,800	100.0

character of neighbourhoods. For instance, the smaller neighbourhoods on the edges of the districts, often with a primary road on only one or two sides, could be developed at lower densities for more expensive houses.

Two thirds of the ultimate population would be living in the larger neighbourhoods with more than one primary school.

Some principles for neighbourhood planning are set out in section 6.5.

6.1.6 Density pattern. The last element is the general form of the two new districts is the proposed density pattern (figure 24). The quantity of residential land is based on an average net density of 15 dwellings to the acre and the greater part of the districts would not be far from the average. The residential areas would consist largely of two-storey houses, with some flats and bungalows. The lower density areas on the edges of the districts would be designed as enclaves of more expensive houses with a 'village' atmosphere to attract some of the executive and professional people who might otherwise seek homes outside the town. Some of these enclaves could overlook the proposed golf courses. The higher density areas—mainly flats for people without children—would adjoin the district centres, where a wide range of services would be close at hand, and where larger buildings would emphasise the role of the centres.

6.2 District centres

6.2.1 Function. The proposed new district centres at Belstead and Bramford serve two purposes—

- i To relieve Ipswich central area of some of the increased demand for shopping and associated services resulting from the expansion, so that it can continue to function as the main sub-regional centre without drastic changes in its scale and character.
- ii To provide substantial shopping and other services as close as possible to homes in the expansion areas.

There must be enough people with convenient access

to the new centres to support the required variety of shops with an acceptable degree of competition and profitability. The centres should not be bigger than is necessary to achieve this aim because the bigger they become the greater are their internal problems, e.g. increasing distance from car park to shops.

Estimates of the population required to support a new district centre in an urban area vary from about 40,000 to about 60,000. In fixing the ultimate population of the Belstead and Bramford districts the higher figure was used, because—

- a The districts will be built up rapidly for a few years and then grow more slowly; the ultimate population will not be reached for some time, but the centres must be established at an early stage so the ultimate population must be well above the minimum needed to support a centre.
- b The new centres will have to establish themselves in competition with the central area of Ipswich.
- c Changes in retail methods may result in more people being needed to support a centre with a given variety of shops and degrees of competition.

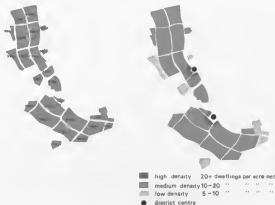
As well as serving the new districts it is desirable that the centres should attract some of the custom from the surrounding countryside. This will give them an extra stimulus and also bring further relief to the town centre.

6.2.2 Location. The centres would be located on the edge of the new districts nearest to Ipswich, close to one of the intersections of the primary road network. There are several reasons for the proposed locations—

- i **Accessibility from the new districts.** Because of the size of the districts, it is unlikely that many people will walk to the district centres, except those living relatively close. Most people will go by car, bus or cycle. A geographically central location would not therefore give much greater accessibility than any other. An edge situation, on the other hand, allows the centres to be strategically placed on the lines of communication between the new residential areas and the existing town.

23 Populations in new neighbourhoods

24 Residential density diagram
Although the general density pattern would be as shown on this diagram, there would be variations within most neighbourhoods.



..... Main bus stops

Shops and offices

P Car parking

Garages and motor showrooms

Community and health centres

Residential

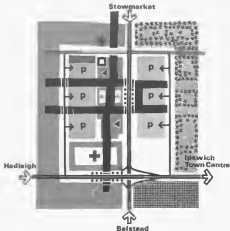
Education

GPO

Public houses

Churches

Hospital



25 Breamford district centre
This diagram suggests how the various elements of the first district centre might be combined and related to adjacent uses

Hadleigh Road (A1071) and a continuation of Birkfield Drive are the most convenient roads on which to concentrate bus routes linking all parts of each district with the town centres. These roads will also be used by most people motoring to the town centres. District centres alongside Hadleigh Road and Birkfield Drive would thus tap the mixed flow of shoppers who would otherwise go on to the town centres.

ii Accessibility from the surrounding countryside Similar considerations apply. A1071, A137 and A138 are the main routes into Ipswich from a large part of southern Suffolk where there is at present no centre of district status. People coming in from the Hadleigh area by public or private transport would pass Breamford district centre. Our proposals to reroute A137 to join Birkfield Drive and to link A138 with the primary network in Belstead district (chapter 19) mean that traffic from the Breamham/Manningtree area and from the Shoddy peninsula would pass Belstead district centre.

iii Relationship to other uses There are some functions that should be close to the district centres in order to make use of the services available there, including public transport. Examples are a college of further education and a general hospital. The proximity of their activities would help to give life to the district centres in the evening as well as during the day. They are uses requiring large sites and can be integrated most effectively with centres on the edge of the built-up area.

iv Timing Programming considerations have affected the location of the district centres in two ways. First, the new districts would be built outwards from a point nearest to the existing towns (chapter 20), both being started near the Chantry extension. The centres should be started at an early stage in the development of each district, and this strengthens the case for locating them

beside Hadleigh Road and Birkfield Drive rather than beside other radial roads where adjoining residential development will come later. Second, the building of the district centres may be spread over several years and this strengthens the case for an edge situation where undeveloped sites can adjoin open space rather than lying in the middle of a built-up area.

v Detailed planning An edge situation provides the best basis for the design of the district centres in view of likely limits of cost and programming. A large number of car spaces (ultimately about 4,000) must be provided at each centre, multi-storey car parks would be too expensive, and at ground level approximately 18 acres will be required. This large open area can most easily be assimilated into the townscape if car parks adjoin the major open space on the edges of the districts. On Sundays these car parks would be available for people visiting the open space. The open space also provides room for expansion for more car parking and shops, and for other functions that may be attracted to the district centres. On other sides housing – mostly at higher densities – can be built close to the shops, integrating the centre into the urban scene, and increasing its convenience for those living nearby.

vi Accessibility from existing town Centres on the inner edge of the new districts are likely to attract some people from the outer parts of existing Ipswich, thus contributing to the unity of the expanded town.

Because of their edge situations the centres are on the lowest lying land in each district, this is an important element in the attractive power of shopping centres.

6.2.3 Content The Urban Structure Map shows an area of 33 acres for each district centre. The core would be a shop and office precinct with some 250,000 square



test for retailing and service establishments, and some 50,000 square feet of offices. The offices would probably include:-

- post office (with yard for vehicles)
- banks
- building societies
- estate agents
- insurance companies
- Development Corporation
- County Borough Council
- Ministry of Labour
- Ministry of Social Security
- Inland Revenue

Other uses likely to be located at each district centre include:-

- public library
- clinic
- group process centre
- garage and motor showroom
- two public houses
- community centre
- youth centre
- day centre for old people
- Christian ecumenical centre
- Roman Catholic church and primary school
- police station

Some of these services would also be provided in other parts of the districts. But those in the centre are likely to draw some people from the whole of each district. The variety of uses should produce a lively atmosphere throughout the day and establish the district centre as a focus of social as well as commercial activity.

6.2.4 Design Figure 25 is a diagram for a district centre. It illustrates the principles that should guide the

grouping of uses, the relationship of buildings and open spaces, and the pattern of circulation. Further study will be required at an early stage of the expansion to produce a brief for the detailed design of the first district centre. The building forms should establish the centre as a symbol of the new district, both when seen from within the district or across the open valley from the existing town (Figure 26). They should also emphasise its role as a link between old and new by opening up views over the valley to landmarks in the existing town.

6.3 Bremford

6.3.1 Site. Bremford lies on the gentle western slopes of the Gipping Valley between A12 on the south and the 400 kv overhead line from Sizewell on the north. The eastern boundary mainly follows A1100 which runs along the edge of the valley floor. The fields are large and there are a few small woods and avenues at strategic points on the skyline. The open character of the district provides extensive views eastwards towards Ipswich.

Surface drainage is to the Gipping and Baitstead Brook. The land is good and well farmed, but a large area of pasture in the Gipping Valley is periodically flooded.

The site is crossed by several lines of 132 kv overhead cables and there is a major grid supply point (400 to 132 kv) in the highest part of the district (about 150 feet) behind Bullen Wood.

The two large and compact villages of Bremford (estimated population 2,000) and Sprooughton (estimated population 1,100) are on the floor of the valley on the eastern edge of the proposed built-up area. The smaller village of Bursell lies beyond the district on the west.

6.3.2 Layout. A1100 would be the easternmost strand in the primary network. South of Sprooughton it would be diverted eastwards to join A12 in the vicinity of Sprites Lane. A1100 would eventually be replaced as a through traffic route by the northern section of the new A45. It would then be taken under A12 to join Bremford with Chantry. The two districts would also be linked by pedestrian bridges or underpasses.

The district centre is located near the junction between A1100 and Hadleigh Road which would carry the bus routes from Bremford to the town centre, and would be assigned to form part of the primary network in the new district.

Between Sprooughton and the district centre would be one of the two combined secondary school sites. The other would be on the outer edge of the district beside Bursell Long Wood.

A site for a second new district general hospital is reserved between the district centre and Chantry Park.

Sprooughton Road and Bremford Road would be extended westwards to form part of the district's primary network and link it with the northern part of the town.

There would be two main industrial areas - around Bullen Wood in the north-west, and north of Hadleigh Road. The former would be directly linked by a new road to the A45. Both would have access to A12 by one of the three north-south primary roads.

One of the neighbourhoods suitable for more extensive housing lies outside the primary network on the west, with views across the upper valley of Baitstead Brook to open countryside.

Most of the other neighbourhoods would be large but there are two small ones between Hadleigh Road and A12.

6.3.3 Design Bramford has an open site and therefore a strong framework must be established to contain the large areas of housing which could easily become monotonous. Since the functional structure of the district will be determined by the primary road network it seems appropriate to emphasise this in the physical structure. This could be done by reserving broad strips for the main roads and landscaping these corridors with heavy planting punctuated by industrial areas (figure 28). The tree belts would also give protection from the strong winds.

Bramford and Soughton villages would lie outside the primary network of the new district, A1100 being re-routed to pass west of Soughton. The two villages would remain largely as they are, with small extensions to the south. The loss of open views to the west should be compensated in part by improvements to the river valley between the villages and Ipswich.

So far as possible the layout has been arranged to avoid development close to the overhead transmission lines, and some of the primary roads have been routed along them. Certain lengths of line, however, would have to be put underground (figure 28).

6.4 Belstead

6.4.1 Site Belstead lies on the plateau between A12 on the west and the slopes falling steeply to the Orwell on the east. The southern edge of the district is defined largely by a chain of well-established woodlands. The northern edge overlooks the valley of Belstead Brook, which would separate the new district from the existing built-up area in south-west Ipswich. The plateau rises to about 150 feet above sea level. The site is well-wooded with a strong pattern of small fields often emphasised by mature hedgerow trees. There are outward views from the edges of the district, especially to north and east across the valleys. The site is cut by the railway which is superbly routed in cutting and on embankment, curving through the trees and leading the eye across pleasant views towards Ipswich. By contrast the prospect of Ipswich from the present A137 – which also crosses the site – is delayed until the last moment when there is a striking view of the port from the top of Bourne Hill.

Surface drainage is mainly to the Orwell via Belstead Brook and some smaller tributaries on the east, but the southern quarter of the district drains outside the proposed designated area to the Stour via Tattingstone Brook.

The land is of good quality and is efficiently used for mixed farming.

The rather scattered village of Belstead is near the middle of the district. The hamlet of Wheatstead is on the eastern side and the villages of Freston, Tattingstone, Copdock and Weebrook are just outside the district.

There are a number of isolated buildings on the site. While few of these are listed as buildings of architectural or historic importance, some would help to give punctuation and identity to the new district.

6.4.2 Layout Birkfield Drive would be extended to become the principal radial road from Belstead to Ipswich and would carry the main bus routes. It should be carried through the district to join the existing Breenham road south of Tattingstone, providing a better route into Ipswich for A137. The present A137 north of Tattingstone would form the eastern link of the primary road network.

The district centre is located on the edge of the plateau north-west of the junction between Birkfield Drive and the most northerly of the three east-west main roads.

A site has been reserved for a college of further education between Birkfield Drive and the railway. One of the two secondary school sites would be on the other side of the railway at the top of Bourne Hill. The other would adjoin the railway on the southern edge of the district beside Tattingstone Brook.

The three main industrial areas are on flat land on the outer edge: between A12 and Old Hall and Brookley woods; between Tattingstone Brook and Holbrook Park; and east of Cutlers wood. They would be linked to A12 by the southernmost strand of the primary network.

Small low density neighbourhoods for higher standard housing would be around Wheatstead village in the east and beyond the secondary school campus in the south.

6.4.3 Design The impression of a number of pockets enclosed by existing woodlands could be emphasised by additional planting of a similar character (figure 29). Housing and industry could be tucked into these pockets, and the primary road network would be designed to disrupt the pattern as little as possible.

On its edges the Belstead district would be treated differently. To the east the aim should be to emphasise the small wooded valleys and to take advantage of the fine views across the Orwell estuary. To the north overlooking the valley of Belstead Brook individual planting should echo the impression of houses on wooded

28 Bramford landscape

The landscape is dominated by the land form and woodlands. The first sketch shows these at Bramford, and the second how the woodlands might be extended to contain the expansion proposals outlined in the third.

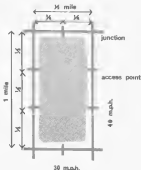
29 Belstead landscape

Although the sequence of sketches is the same as for Bramford, the nature of the new planning would be quite different. It would reflect the more enclosed character of the spaces between existing woodlands south of Ipswich.



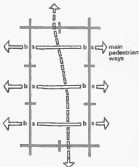
30 Neighbourhood access points

The 1 mile by 1/2 mile grid means that a neighbourhood could have six access points as shown. They would be controlled by linked traffic signals. This number would be required for 10 000 people, but fewer would be necessary for smaller neighbourhoods.



31 Bus stops and main pedestrian ways

Bus stops should ideally be half-way between access points so as to be within walking distance of all parts of the neighbourhood and to have pedestrian approaches separate from the local distributor roads. The highest traffic flows on local roads would be on the lengths approaching access points. To minimise the number of pedestrian crossings, three of the bus stops would also be the main connections between adjacent neighbourhoods.



slopes seen on the Cherry side. To the south the gaps in the existing woodlands would be occupied by the larger industrial estates. The existing village of Belstead would form the basis for one of the new housing areas.

Isolated houses should so far as possible be kept. Some may continue to be homes even though not farm-houses. Others might be suitable for offices or educational establishments. There are examples of both in the district at present - Whitstead Hall, the headquarters of the Eastern Electricity Board; and Belstead House, the East Suffolk County Council educational centre.

5.5 Neighbourhood planning

It is not an object of the draft Basic Plan to provide a detailed layout for each part of the residential area. But there are a number of principles which should govern the design of individual neighbourhoods if they are to function efficiently as parts of the overall plan. These principles are illustrated on the accompanying diagrams.

5.5.1 Access The number and location of access points from the primary road network is determined by the needs of traffic. Regular spacing is necessary if full benefit is to be gained from the proposed system of limited traffic lights. The spacing of access points is different on the long and short sides of a neighbourhood and the design speeds differ (Figure 30). Six access points would be needed for the neighbourhoods with a large population or a substantial amount of employment. Smaller neighbourhoods would require fewer access points.

Pedestrians require access to each neighbourhood both from bus stops on the primary roads and from adjacent areas (Figure 31). The number of underpasses can be kept to a minimum if the main pedestrian routes linking the neighbourhoods cross the primary roads close to the bus stops. The latter would normally be half-way between the road access points. Thus the main pedestrian routes within each neighbourhood would be well away from the points where neighbourhood distributor roads carry the greatest flows of traffic, i.e. near their intersections with the primary network. Other pedestrian crossings might be integrated at ground level with the light-controlled access points. The greatest pedestrian movement is likely to be on the major pedestrian ways approaching the bus stops. These run across the districts. Only near the district and local centres are pedestrian flows along the districts likely to be considerable.



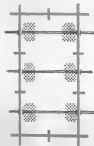
32 Neighbourhood distributor roads

These should link all parts of the neighbourhood and connect with the main grid at the access points. There is no set pattern, each being decided when a neighbourhood plan is prepared. They should not, however, create short cuts between access points, nor be designed to carry more traffic than is compatible with pedestrians crossing the roadway. They should serve local centres directly and penetrate the residential core so that access loops or cul-de-sacs are relatively short.



33 Location of local centres

Local centres should be located on the main pedestrian ways leading to the bus stops. Internal traffic might also be reduced if they were fairly near the access points from the primary network.



6.6.2. Neighbourhood distributor roads The access points from the primary road network would be linked by neighbourhood distributor roads which should be designed so that any part of the neighbourhood can be reached from any entry point, but so that they do not become attractive through routes for extensive traffic. The only traffic inside a neighbourhood should be that with its origin or destination there. Internal roads would therefore be lightly loaded except near their junctions with the primary network. Neighbourhood distributor roads would give direct access to local service buildings and to some homes, but most homes should be on loops or cul-de-sacs serving groups of up to 100 houses. Neighbourhood distributor roads should be planned to cross main pedestrian ways as little as possible. The worst place for such crossings would normally be near local centres where the greatest pedestrian and vehicular flows in the neighbourhood are likely to coincide.

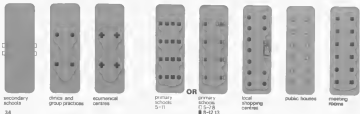
6.6.3 Local services As stated in section 6.1.7, the distribution of local services should be determined not merely by the pattern of neighbourhoods but broadly by the number of people required to support an efficient unit. There are some services that may require the support of about 15,000 people; these include clinics, group practice centres, Christian ecumenical centres and possibly public libraries (figure 34). These would be four units in each district, one would normally be in the district centre and the others would be located where they would have good access by car, bus or on foot from about a quarter of the district.

Other local services are supported by fewer people and there would be at least a dozen primary schools, shopping groups, pubs and meeting rooms in each district (figure 34). Their number can be adjusted somewhat so as to provide these services in most of the neighbourhoods, with a choice of establishment is the larger neighbourhoods. But the actual scale of provision must take account of many changing factors, including likely variations in the age composition of neighbourhood populations at different stages in the town's growth (figure 35).

There are advantages in grouping most of these services at local centres—

- i Different uses support one another, e.g. mothers meeting their children from school can call at nearby shops, children can be occupied in the playground while their mothers are shopping.
- ii Pedestrian routes, including underpasses from adjoining neighbourhoods and from bus stops, can be planned more economically when uses are grouped.
- iii A mixture of compatible uses generates a lively atmosphere.

Local centres would vary in the number of services they provide. For instance, some would have a clinic, but most would not; most would have a pub, but some would not (figure 36). But all local centres should normally be located on a main pedestrian route leading to a bus stop. Since they would attract service vehicles from outside the neighbourhood they should also have direct access from a neighbourhood distributor road close to its intersection with the primary network (figure 33).



34 Local services

There would be four secondary schools, clinics and possibly ecumenical centres in each district. Each should be easily accessible from the quarter it will serve so there would be little freedom in the choice of location, and each would serve several neighbourhoods.

There would be about a dozen meeting rooms, local shopping groups and pubs in each district and at least 16 primary schools. Their number and location can be adjusted to suit the needs of the neighbourhoods and to take into account the positions of the main roads and other features.

35 The changing population structure of a small new area

The assumed initial imbalance will lead to 'bulges' passing through different age groups as the neighbourhood gets older. These should be taken into account when deciding the provision of neighbourhood services.

36 Local centres

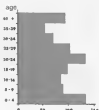
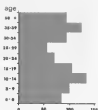
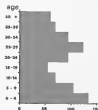
The separate requirements for different local services mean that each may have a different pattern of distribution. Where the preferred location for one service is close to that for another, the nucleus of a local centre is created. Local centres would vary according to how many services cluster together.

38



38

number per 1000 population



- to Districts
 to Villages
 to Communities (neighbourhoods)
 to Towns
 to Cities
 to Suburbs
 to Rural Areas
 to Open Country
 to Water
 to Air
 to Land
 to Sea
 to Sky
 to Sun
 to Moon
 to Stars
 to Planets
 to Galaxies
 to Universe

6.5.4 Neighbourhood industry In as many neighbourhoods as possible there should be one or more small industrial areas. There are four reasons for this proposal –

i To spread traffic flows generated by travel to work as evenly as possible over the primary network.

ii To provide some factory employment within walking distance of homes. As the social survey showed, this would be especially convenient for married women.

iii To establish a transitional visual scale between the primary roads and the residential areas, and to help shield the latter from the noise and movement of fast traffic.

iv To bring more life into the neighbourhoods. Workers in the factories would help support the shops and pubs and could use local open spaces in the dinner hour. Housewives would not feel so cut off from the life of the town.

These industrial areas should be located between the primary network and a neighbourhood distributor road, with access from the latter close to the intersection between them. Traffic to the factories would not then have to pass through residential areas, and no homes or gardens would directly adjoin industry (Figure 37).

Neighbourhood industrial areas would also be suitable for some other uses, e.g. petrol filling stations, fire stations, telephone exchanges.

6.5.5 Planning briefs: The above principles should be included in the planning brief given to the designer of each neighbourhood. The brief should also state what local features are to be retained or used in a particular way, and should refer to visual requirements for the creation of a unified district. The further work necessary to develop the draft plan should include studies of the various ways by which a unity of design could be achieved.

Although none of the neighbourhoods has yet been designed, Figure 38 is included to illustrate one way in which the expense areas might be organised in accordance with the above principles. It does not allow for the details of local topography which must be taken fully into account before the final plan for any neighbourhood is produced.

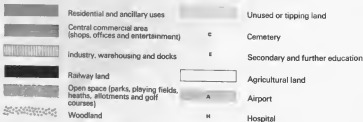


37 Neighbourhood Industry

This is best located on the edge of the neighbourhoods to screen housing from the noise of the main roads, and to avoid homes penetrating the residential areas.

- High density residential
- Medium density residential
- Low density residential
- Industry
- District Centres
- Large local Centres
- Small local Centres
- Secondary schools including playing fields
- Further education including playing fields
- Middle school
- Primary school
- Electricity Stations
- Sewage disposal works
- Freight terminal
- Hospital
- Woodlands
- Playing fields and allotments
- Golf courses
- Floodlands
- Regional open space
- Cemetery
- Service reservoirs
- Regional road
- Town distributor
- Neighbourhood distributor
- Access loop
- Regional sports centre





Existing land uses

The building of the new districts will be the biggest change in Ipswich up to 1991. But the rest of the town will not stand still. Indeed, it is already changing rapidly. Even before expansion was proposed the County Borough Council had initiated the redevelopment of large areas in and around the town centre. The Civic College and the new livestock market, the Geylfrers group of offices, shops, flats and entertainment facilities, the first section of a proposed inner ring road with the Civic Centre now being built beside it, the 'East Anglian' site between Carr Street and Great Colman Street now being prepared for a new shopping precinct; office buildings and additional car parks on land cleared of slums — all these testify to the Council's confidence in the future of Ipswich and its determination to solve the town's problems.

Further change in the existing town must now be planned in the context of major expansion. This chapter deals with four aspects of Ipswich that have been considered in preparing the draft Basic Plan—

- i cross-town communications
- ii neighbourhood structure
- iii older housing
- iv sports facilities.

The town centre is dealt with in the following chapter. Figure 33 shows existing land uses throughout the town.

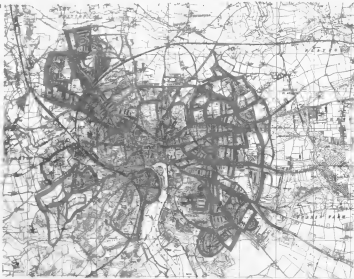
7.1 Cross-town communications

The number of trips from one part of the town to another will increase greatly as expansion proceeds because many newcomers will take jobs and make social contacts in the existing town while many established residents will take jobs and make social contacts in the new districts. More and more of these trips are likely to be made by car.

7.1.1 The root of the problem Cross-town traffic is already a special problem because of the location of Ipswich around the head of the broad Orwell estuary. The town was established north of the sharp bend in the river around Stoke Hill. Until recent times Ipswich grew almost entirely north and east of the river, except for the isolated neighbourhood south of Stoke Bridge. Industry and other workplaces were concentrated in the town centre and along the Gipping/Orwell valley. Most employment has remained there (Figure 40) and consequently the spread of residential areas away from the valley has led to a great increase in travel to work. The problem has become more acute since the war with the building of housing estates south-west of the river at Maidenhall and Chantry, and the growth of a large new industrial area at Nacton on the opposite end of the town. Journeys to work in Ipswich remain relatively short — half taken ten minutes or less. But the social survey showed that in outlying districts, such as Whitton and Rushmere, only a sixth of the workers have journeys of ten minutes or less, whereas in Gainsborough and Stoke, adjoining the established industrial areas, the proportion is between two thirds and three quarters.

7.1.2 Impact on town centre Because of the unbridged estuary penetrating deep into the borough, east-west traffic, including through traffic to and from the Suffolk coast, is either forced into the narrow neck of the town centre between Christchurch Park and the Wet Dock, or has to use the inadequate ring road north of the park. So the two most striking features of Ipswich — the great park and the great dock both adjoining the central area — have accentuated what would in any case have been an acute problem with the growth of traffic in the medieval streets. Because of the physical barriers the radial roads all converge on two small areas east and west of the town centre.

7.1.3 Proposals The town centre must be made readily accessible to the growing population and a more pleasant place to shop in and work in. The increasing number of east-west journeys should be fast and convenient. To achieve these objectives a large part of the through and cross-town traffic must be removed from the central area. This can be done only by a new road



40 Existing employment centres and communications

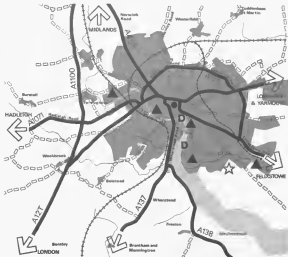
The dot indicates the main employment concentration, the central area. The industrial centres are shown by triangles and the airport with the star. All the existing quays are on the east bank of the river.

41 'Neighbourhoods' as defined by residents

The thickness of the lines indicates the extent of agreement among the sample interviewed on the boundaries of neighbourhoods. The thick lines were taken into account in the formulation of proposals for the existing town. The boundaries of the brown areas in the following diagram follow the thick lines.

42 The effect of new roads on existing 'neighbourhoods'

The roads are those shown on the proposed Urban Structure Map (foldout). In most cases the proposed roads pass between neighbourhoods. In a few places where this is impossible, and a new road is shown passing through a brown area, special problems will have to be solved.



south of the centre that will help to and the division between east and west Ipswich. This is the main purpose of the proposed A45 urban motorway connecting with the radial roads from east and west well clear of the centre, and bridging the Orwell at the West Dock. The road, more fully described in chapter 19, would carry through traffic to and from Felixstowe, and a large part of the internal traffic between west and east Ipswich. It would form the southern side of a box of primary roads surrounding the central area (section B.4).

Through traffic to and from Woodbridge and north-east Suffolk could also be diverted to the new A45. After the completion of the dock bridge a link could be made from the proposed Knapgrave by-pass along the line of Heath Road to the urban motorway. The growth of traffic during the expansion period would not justify the construction of a northern by-pass.

To connect these proposed major roads with all parts of the existing town there is a need for a grid of limited access roads similar to that proposed for the expansion area and directly linked with it.

The Urban Structure Map shows a possible network made up largely of improved existing roads with some new sections. This is not an ideal solution but is likely to be the only practicable course during the period of expansion, owing to limited funds and existing property values. In defining the precise lines for these roads and programming their construction, it will be necessary to consider both the origins and destinations of traffic and the relationship of the network to the existing fabric of the town – in particular to neighbourhood structure and to the renewal or improvement of the older residential and industrial areas.

7.2 Neighbourhood structure

In the social survey the people interviewed were asked to define the neighbourhood where they lived. There were many individual interpretations but their answers showed a consistent pattern that is summarised in figure 41. Most of these neighbourhoods are defined by existing main roads, it is clear that the physical fabric has influenced the social pattern. Because the areas are divided by main roads local facilities are not usually located in a central position in the neighbourhoods. In particular, local shops – except on the more recent housing estates – are strung along the radial roads bounding the neighbourhoods. Ipswich has an adequate number of local shops but many of them do not form compact centres conveniently placed for the areas they serve. In developing the proposed road grid there would be opportunities to rationalise local shopping provision. The neighbourhoods revealed by the social survey have been considered in deciding which main roads to recommend for improvement and where to suggest entirely new links. Figure 42 shows a possible pattern of primary roads related to the potential environmental areas derived from the social survey.

7.3 Older housing

Figure 43 shows the existing town divided into areas according to the age and type of housing. This is fully described in appendix D.

In chapter 11 it is suggested that, in addition to the slums being dealt with by the Council, there are a num-

43 Housing in Ipswich

The plan shows two different types of housing: grey and older ones in brown. The key relates both to the above plan - and to appendix D where further details are given for these areas.



TOTAL DWELLINGS
37,436

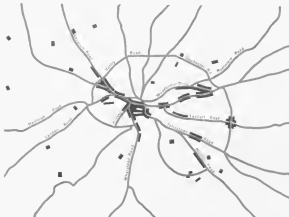
TOTAL PEOPLE
114,305

PERSONS PER DWELLING

A.B	19th CENTURY TERRACES	TOTAL DWELLINGS 37,436		TOTAL PEOPLE 114,305		PERSONS PER DWELLING
		5518		14687		
C	19th CENTURY MIXED	8445		25711		2.7
D	19th CENTURY VILLAS	433		1132		2.6
E	INTER-WAR PRIVATE	7253		21132		2.9
F	POST-WAR PRIVATE	2509		7248		2.9
G	20th CENTURY VILLAS	1058		3075		2.9
H	INTER-WAR COUNCIL	4189		16431		3.95
I	POST-WAR COUNCIL	6328		23128		3.66
J	CENTRAL AREA	702		1761		2.5

44 Existing shopping facilities

Although new roads would normally pass near rather than through these established centres opportunities for relocating and re-arranging some will arise



45 Existing recreation areas

The black areas show the main parks and other public recreation areas within the town. The river is navigable below Stoke Bridge. The main deficiency is in playing fields, though Whiston does not have a good park



ber of areas of older housing where comprehensive improvement or renewal should be undertaken during the expansion period. The delineation of these areas will influence the detail and timing of the proposed highway improvements which should so far as possible go hand in hand with improvements to the residential environment.

7.4 Sports facilities

One of the great assets of Ipswich is the large number of excellent public parks (figure 45). These include Christchurch Park immediately north of the town centre, and Chantry Park and Bourne Park serving the residential areas in the south-west. Bourne Park would become part of the major open space in the valley of Belstead brook, and Chantry Park would also serve part of the expansion area. East Ipswich is not so lavishly provided with open space but this part of the town adjoins the extensive heaths outside the borough boundary and is also close to the Orwell estuary. The most serious deficiency of parks is in north-west Ipswich and this would be met by the proposed open space in the Gipping valley between Bamsford and Whiston, and additional provision east of Hanley Road.

Despite the great amount of open space there is a deficiency of playing fields and other sports facilities. The National Playing Fields Association recommend a standard of six acres per thousand people; Ipswich would have just over two acres per thousand if all the playing fields shown on the 1971 Development Plan were provided. The Council has recently completed a survey of sports facilities and has proposed the establishment of a major sports centre. This would serve the whole sub-region, and for some events the whole of East Anglia. It should therefore have good access from the regional road system as well as from all parts of the town. The draft Basic Plan shows a site for the sports centre in the bend of the river near Sproughston Manor and close to the proposed new A46.



IPSWICH CB & PH

mile
kilometre

HALIFAX

8 The town centre

46 The centre of the town
Scale: 6 inches to 1 mile.

Our first report set out two principles for the planning of the central area —

i It should remain the principal shopping and service centre for the whole sub-region.

ii Redevelopment should preserve the existing scale and character in the heart of the town.

Figures 60, 61 and 62 show preliminary proposals, based on these principles, for the broad pattern of uses, vehicle and pedestrian circulation, and car parking provision. At this stage the proposals are diagrammatic and do not show the detailed alignment of roads or the precise use of every site. Further work will be needed to quantify requirements, define road lines and car parks, make proposals for pedestrian pavements, and produce a financial appraisal.

8.1 Activities

Much of the social and economic activity of Ipswich is concentrated in and immediately around the central area.

Nearly all the functions serving the sub-region are there, including County Hall, the Civic College, the livestock market, the football ground and the railway goods yard, as well as the principal shops and offices. There is a considerable amount of warehousing and industry in the centre and the port directly adjoins it on the south. Ipswich town centre is the major employment area of the sub-region.

Table 8 shows the estimated site area, floorspace and employment for each of the main uses in the central area. The figures are for an area (figure 46) rather wider than that containing most of the central area today. A wider area was studied so that —

i it would cover the areas into which central uses might in future expand;

ii it would encompass the area affected by traffic movement into the town centre.

Activities are present concentrated in the central area will tend to increase in volume for three reasons —

- a the increased population of Ipswich;
- b the growing population in the rest of the sub-region;

8 Existing uses in the central area

Use	Site area (acres)	Floor space of buildings (square feet)	Estimated employment
Shops	21	1,975,000	4,800
Offices	16	1,282,000	7,600
Warehouses	48	1,524,000	3,000
Industry	42	1,646,000	5,700
Education	14	284,000	300
Churches	15	225,000	—
Transport	23	146,000	1,800
Other uses*	23	687,000	1,800
Residential	61	—	—
River	7	—	—
Vacant sites	32	—	—
Roads	17	—	—
Total	367	7,720,000	23,300

Sources: County Borough Council and field surveys.

*Including entertainment, recreation, hotels and restaurants.

c The national trend towards an increase in the type of activity carried out in sub-regional centres.

At the same time there is a growing tendency for certain activities previously concentrated in town centres, e.g. industry and warehousing, to decentralise. The object of the plan should be to anticipate these trends and direct them in an orderly way rather than allowing intolerable congestion to be followed by sporadic dispersal.

As a sub-regional centre Ipswich is likely to serve much the same area in the future as at present. Despite the growth of population and services it is unlikely that it would capture much custom from such well-established centres as Colchester, Norwich and Cambridge. The establishment of a new city in central East Anglia, which has been mooted, would make little difference as it would compete only in the more remote and sparsely populated parts of the Ipswich area of influence.

In recommending that Ipswich central area will remain the principal sub-regional centre we imply neither that it should perform only sub-regional functions nor that all sub-regional functions should be performed there. On the one hand, the central area should remain a district centre for much of the existing town, and a local centre for people living and working in and around it. On the other hand, some sub-regional uses — especially warehousing and service industry — would be better located outside the central area. But with the establishment of the two proposed district centres, there would be a greater emphasis in the central area on those sub-regional uses which are best located there. In the main these are not large land users or employment generators. However, the central area may also have to accommodate most of the basic (national and regional) offices that move to Ipswich. It is therefore necessary to estimate the amount of activity that can be efficiently carried on in the central area consistently with the objective of creating a satisfactory environment.

8.2 Physical form

The main uses in the central area today fall into a number of fairly distinct zones, though these are subsidiary uses in all of them (Figure 47).

The shopping centre largely coincides with the historic core of the town. It is linear in form, with a 'High Street' made up of Westgate Street, Tavern Street and Car Street, and important extensions in the Butter Market, Upper Brook Street and some other adjoining streets. At the heart of the shopping area is the Cornhill — the central square of Ipswich with the Town Hall and the General Post Office. The area consists mainly of three and four storey buildings punctuated by spires and towers of the medieval churches, giving Ipswich its characteristic image. Some of the main streets have been

widened but the medieval pattern remains intact and the narrow alleys running north/south across the shopping centre are a vital part of its character (Figure 48).

Immediately north of the centre is Christchurch Park, surrounded by the larger Victorian houses, and in this area are the present district general hospital, the museum and art gallery, and Ipswich School.

In other directions the shopping centre adjoins streets such as Museum Street and Northgate Street where historic facades have been largely preserved and where the predominant use is now professional offices.

East of the centre a pre-war council estate cuts off the Civic College and County Hall from the heart of the town.

On the west is the principal area of post-war clearance and redevelopment. Here the Civic Centre and other large office blocks are being built alongside the completed section of inner ring road and beyond are the livestock market and the football ground. The area is characterised by large buildings in a spacious setting, contrasting with the heart of the town (Figure 49).

To the south, between the shopping centre and the river, is a considerable area of industrial and commercial uses. The narrow north-south streets continue, with some pleasant groups of old houses, up to the abrupt change of scale of the buildings surrounding the West Dock.

The amount of current rebuilding and further planning applications, the age and condition of some of the buildings, and the likelihood of changing functions all suggest that there may be considerable redevelopment in the central area during the expansion period. This development will be of two kinds —

i The rebuilding of individual shops and offices in the heart of the town, generally on existing sites and with no change of use.

ii Major redevelopments, such as the possible relocation of County Hall and the railway goods yard, providing an opportunity for complete changes of use and character.

8.3 Policy

The social survey showed that most people in Ipswich are anxious to preserve its market town atmosphere. This seems to be compounded of two elements —

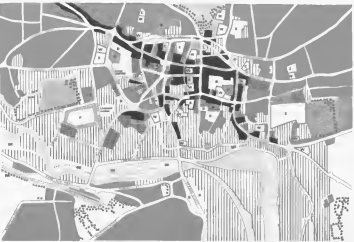
i the small scale of the buildings and the narrow winding streets;

ii the close-knit mixture of uses.

The character of Ipswich is not determined in the main by noteworthy individual buildings. Few are worth keeping for themselves — but it is vital that those few should be preserved to provide historical continuity and architectural variety. They include most of the churches, the Ancient House, the Great White Horse, the Custom

47 Existing land
uses in centre

Scale of map 1:50,000
1 inch = 1 mile
1:12,500



- | | | |
|---------------------------|-----------------------------|-----------------|
| Shopping | Housing, | Museum |
| Industry, warehousing, | Recreation (parks, | Library |
| wholesaling, docks | swimming baths, clubs, etc) | Theatre |
| Bus station | Car parks | Wooded hillside |
| Land awaiting development | Places of worship | Football ground |
| Railway land | Education | Hotel |
| Offices | Cinema | |
- Scale of map 1:50,000
1 inch = 1 mile
1:12,500

48 Historic areas

To preserve the historic buildings (black) in their correct setting means conserving the areas in which they cluster (brown)



49 Fixed elements

The recently completed buildings (brown) and the historic areas together form a fixed pattern which should be incorporated into any proposals for the central area



80 Proposed central area circulation

Only the main distributor roads are shown on this drawing. They have been placed around the road elements and serve the main car parks and bus station. By using one-way systems it is possible to create adequate capacity for future traffic.



81 The pedestrian network

The streets through the historic areas would form the basis of the pedestrian system. This would extend eventually throughout new development and into adjacent residential and recreation areas separated from roads wherever possible. In some areas roads would be closed to traffic, in others vehicles would be excluded only at specific times. Elsewhere existing service roads would remain, possibly with pavement improvements.



House, and the remaining medieval houses in Fore Street and elsewhere. There are also a number of street frontages such as those in Museum Street, Lower Brook Street and St. Peter's Street that should if possible be preserved.

But the main constraint on the planning of the central area is not the need to preserve individual buildings or groups of buildings, but the aim of maintaining the present scale in the heart of the town. This is the main limitation on the desirable volume of activity. The principal limiting factor is the capacity of the streets to give access to town centre uses without drastic widening or multi-level road works. Even if the greater part of through and cross-town traffic were removed to the proposed A45 urban motorway, the central streets would still have to carry a considerable volume of calling traffic. We estimate that road improvements in scale with the heart of the town could serve a maximum of about 10,000 off-street car parking spaces including those in Greyfriars and the Civic Centre. This is about three times the present number. About half the total would be for shoppers and would have to be in multi-storey structures close to the main shopping streets; the rest would be for people working in the central area. The upper limit on employment in the central area would thus be fixed by the proportion of workers coming by car. At present this appears to be below 30 per cent. If it could be stabilised at about 30 per cent, then the town centre circulation and car parking system could support an employment total of some 27,000, an increase of about 4,000 on the numbers employed today. This would allow for the growth of sub-regional functions and for the establishment of basic offices, provided that some of the existing industry and warehousing were decentralised to the expansion areas.

To get 70 per cent of the people working in the central area to make use of public transport it would be necessary to provide convenient and frequent services. The plan contributes to this aim by—

a. The shape of the new districts which permits a relatively short route mileage to take buses within a quarter of a mile of the majority of homes.

b. A circulation system in the centre that provides sitting down points close to every workplace.

However, it might be necessary, in order to achieve a 30/70 useful split between private and public transport, to restrain the use of private cars by adjusting the level of parking charges. The only alternative would be to reduce the level of activity below that which seems likely to be desirable. There must be a constant review of the interplay between the main factors—the growth of employment, the level of traffic and the provision of public transport.

5.4 Circulation

Figure 50 shows two main elements in the proposed road pattern for the central area—

1. a box of primary distributors wholly surrounding the area;

2. a figure of eight of one-way streets serving the car parks and central uses.

The A45 urban motorway would form the north side of the box. On the west Bechford Drive would be continued over a new river crossing to join St. Matthews Street. On the north St. Matthews Street and Crown Street would be improved. On the east a new road would run between the Civic College and Alexandra Park to link Crown Street with the urban motorway.

The figure of eight would be made up largely of existing streets. There would have to be some major widening and new construction, but by adopting one-way flow it would be possible to limit these to a scale compatible with that of the existing town. Furthermore, the use of existing streets wherever possible would enable the new system to be introduced fairly quickly. Local bus routes from all directions could follow the figure of eight and thus give access to all parts of the centre. The establishment of this pattern would make it possible to consider the pruning or partial pruning of the main shopping streets and the smaller streets running between them (Figure 51).

5.5 Pattern of uses

Six areas would be defined by the box of primary roads and the figure of eight (Figure 52). The shopping centre would form the upper part of the figure eight; the lower part would be for commercial uses, mainly offices, but including those industries and warehouses which must remain in the central area. The four areas between the figure of eight and the box would be mainly occupied by educational uses around the Civic College to the east; by the Wet Dock to the South; by new residential areas near the river and railway station; and by mixed uses including the local government centre on the west.

The calculations on which we have based our preliminary proposals for the town centre are set out in appendix G, and some of the more important uses are discussed individually in part IV.

5.6 Design

The town centre is an important element in the visual structure of the expanded town discussed in chapter 10.



The present form is summarised in figure 53, and a broad three-dimensional policy for the central area is shown in figure 54. The main features are—

- i To preserve and enhance the green edge of the plateau that appears to contain the inner town.
- ii To maintain and intensify the contrast between the small scale of the historic heart and the larger scale of the area immediately around it.
- iii To improve the river as an integral part of the urban scene (see chapter 5).

Further study will be needed of a number of aspects, including—

- a The character required of new buildings in the historic centre to ensure that they fit in with the remain-

ing older buildings and that the churches continue to be dominating elements in the townscape.

- b The most suitable use for historic buildings, and measures to ensure proper care and maintenance of the town's heritage of older houses and churches.

- c The design of new main roads around the centre, especially the urban motorway; how they look from the town and how the town looks from them are equally important.

- d The types of housing suitable for the central area, and the best forms and locations for them.

- e The relationship between the town centre and the river, and the use of sites around the Wet Dock, if their present use should be relocated.

53 Existing form of the centre

The historic areas are predominantly of three storeys whereas the dockside and recent buildings to the west and south are more massive.



54 Proposed form of the centre

Future building should further develop the contrast between the old and the new, by concentrating the taller blocks on the west and south of the centre. None of these should intrude into the historic core.



9 The river

A century ago barges navigated the Gipping to Stowmarket and regattas were held in the heart of Ipswich. Today commerce and recreation on the river are largely confined to the broad Orwell estuary below the Wat Dock. The town reaches are neither useful nor beautiful. Many people have expressed concern about the state of the river; some years ago the Ipswich Society conducted a survey and made some valuable suggestions. Expansion to the west will add to the potential importance of the river and give an opportunity for improving it.

9.1 Problems

The Gipping/Orwell runs for nine miles through the proposed designated area from just above Eyford Mill in the north to Preston Reach in the south. Its course is tortuous, and until the estuary is reached, there is no point from which more than a quarter of a mile of river can be seen (figure 55).

The Orwell is tidal up to Horseferry War and silt and refuse on the river bed are exposed for half the time. The rise and fall erodes the banks and keeps silt and mud in suspension, giving the river a constantly filthy appearance. It is also polluted by industrial effluent discharged upstream. Buildings generally back on to the river, the banks are in poor condition, the towing path is decaying, and the river corridor is almost without pleasant incident.

The combined foul and storm water sewers serving the town are designed so that at times of prolonged heavy rain they overflow into the Orwell, but when a rainstorm coincides with a spring tide and a heavy runoff higher up the valley the lower parts of the town are flooded.

Above the built-up area the river varies in width and depth. In the shallower parts weed prevents bathing and would make boating hazardous. Fishing is the only sport at the moment.

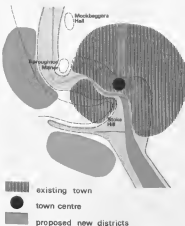
The plan aims to rectify some of these defects and to make the river once more an attractive feature of the town. It will take many years to achieve this. But it is important to have a perspective to guide overall development and shape improvements whenever the opportunity arises.

9.2 Proposals

These are shown in figure 56.

- i The approach to Ipswich from the estuary would be improved by careful extensions to the Gainsborough estate together with extensions to the existing woodlands, creating a well-defined edge to the town.
- ii On the opposite shore the Strand should be designed as a picnic area with handy seats and tables, improved car parking and better access to the water.
- iii The construction of the proposed new quay at Halifax on the right bank opposite Cliff Quay would complete the industrialisation of the upper estuary. If approved, it should be designed so as not to spoil the views of the wooded ridge above Stoke Park from the opposite bank. It would be desirable to replace the yacht moorings now in the area of river bed to be reclaimed, and to ensure continued facilities for the Orwell Yacht Club and the boathouse at Bourne Bridge.

56 The critical position of the river



Bridge—The bridge was built by the state. It is a concrete bridge with two lanes in each direction. The bridge is about 1 mile long and crosses the river at its widest point. The bridge is a toll bridge and costs \$5 to cross.



RIVERBANK TREATMENT

to combine early flood prevention with later landscaping



STAGE 1



STAGE 2

temporary piling driven down when adjacent land developed



iv The proposed bridge carrying the A48 urban motorway over the Wet Dock and the New Cut would make an imposing entrance to the town in scale with the port installations on either hand.

v The next section of the river from the New Cut to Constantine Weir is critical. It is here that flooding occurs; here too the river is closest to the heart of the town. The East Suffolk and Norfolk River Authority have prepared a scheme for a weir in the New Cut and improvements to the banks and river bed to end the danger of flooding. Works would extend upstream as far as the bridge carrying the main railway line. A model has been tested and the authority hopes to make an early start on these works.

It is vital to prevent flooding, but the need for weir works should also be seen as an opportunity to enhance Ipswich by improving the appearance and use of the river. The visitor arriving by train makes his first contact with Ipswich around this section of the river. People living in the expansion area would cross it frequently by way of Stoke Bridge, Pincus Street bridge, or the new bridge carrying the proposed extension of Birkfield Drive into the town centre. The natural direction for the expansion of the central area is towards the north bank of the Orwell between these bridges. The relocation of the yeast factory and the railway goods station would provide sites for prestige offices or high density housing if the river were improved.

To make the most of this part of the town it is essential to our view to retain enough water to cover the river bed at all times, and to provide attractive riverbank walks. These two conditions are not met by the River Authority's scheme. We are therefore recommending some amendments, including a second weir to maintain the water level upstream from Stoke Bridge, and a different treatment of the banks. We recommend that they be drawn out in detail, tested and costed before a final decision is taken.

The cost of these proposals would be greater than a simple flood protection scheme, mainly because sewers would have to be diverted and sewage pumped to prevent the water backing up. But the cost would be a small proportion of the total investment in town expansion. We believe it would be fully justified by the long-term benefits it would confer.

Towns in many parts of the world are considering how they can make better use of their waterways to enhance the urban scene and provide some relief from the growing weight of traffic and bulk of buildings. The river is one of the most important assets of Ipswich; a revival of its past beauty and interest could make a major contribution to the image of the expanded town.

vi The river divides just above Constantine Weir—
a The Gipping (western limb) is kept at a constant level between two sluices. This is because the waterways

formerly used for cooling by the Constantine Road power station. A short canal joins the river and together they enclose two sides of the recreation ground in Portman's Walk. This open space, together with the bowling alley, the greyhound track and the football ground, provide some of the ingredients for a town pleasure park which could be developed to cater for a wide variety of pursuits along this stretch of the river. The traditional fairground site at the opposite bank, Constantine Road power station has been closed. This may make possible a revival of pleasure boating in the heart of the town.

b The Orwell (western limb) is at present seriously polluted, its condition would be improved if the effluent from the beet sugar factory could be diverted to one of the new trunk sewers serving Bramford district.

vii The two limbs rejoin above Yermouth Road and the Gipping then extends without interruption to the beet sugar factory. Despite the mixture of industry, obsolete housing, market garden and tips, the riverside is surprisingly pleasant, mainly because of the mature trees. Further planting should be done at strategic points and when adjoining land is taken for industrial development firms should be encouraged to site playing fields beside the river so that the green walk is further enhanced.

viii The island south of Cherry Cut is likely to be used for sand and gravel extraction. It is suggested that the method of working be arranged so that an uninterrupted lake results. Land to the east and south could be earmarked for lakeside housing close to the Bramford district centre. One of the proposed secondary school campuses would overlook the lake from the west.

ix The river narrows and becomes much shallower near the approach to Sprooughton mill. This stretch is likely to be used only for incidental recreation—walking, fishing, etc. Planting is proposed to screen the beet sugar factory and the other harsh edge of Sprooughton village.

x The long stretch of the river from Sprooughton mill to Bramford mill curves round the wooded hillsides reserved for a regional sports centre. Flat land between the river and A1100 should be used for public playing fields. The small sewage works serving Bramford village could eventually be removed.

The proposed urban motorway from Blakenham to east Ipswich will be close to the river for most of its length. The visual relationship between the two should be considered at every stage in the design of the road and of river improvements.

We have dealt with each distinctive section of the river in turn. While it is important to have variety in the riverside scene it is equally important to design the improvements to give a greater impression of the continuity of the river throughout the expanded town.

57 Students riverside accommodation



The preceding chapters have considered each geographical division of the town. They have tried to show how these parts will be welded together by the central area and the developing system of cross-town communications. The functional structure should be mirrored by the visual structure. The draft Basic Plan – though two-dimensional in presentation – embodies a broad three-dimensional policy for the overall form of the town. This is made up of a number of elements, including such things as –

- i Districts with an identifying character.
- ii The scale of different parts of the town – height and bulk of buildings, relation of buildings to streets and open spaces.
- iii The edges of the town and of distinctive parts of it.
- iv The landmarks (natural or man-made) that are seen from many points within and outside the town.
- v Distinctive buildings or groups of buildings that stand out as symbols of particular parts of the town.

Such elements make up the visual structure, helping people to find their way about the town and to feel at home in it.

10.1 Existing Ipswich

Many of the small towns in Suffolk lie snugly in a river valley, invisible from a short distance away, neatly contained by the edges of the plateau. Half a century ago, Ipswich was like this. The town was entirely within the Gipping/Orwell valley, uniquely sited where the river makes its sharp right-angle bend round Stoke Hill. The town centre and the inner areas are contained by an almost complete circle of tree-crowned slopes. But the suburbs have now spread beyond this edge and far over the plateau. They have no natural limits and the character of development has not generally defined any artificial ones. Ipswich presents a rugged edge to the surrounding countryside.

Throughout the town buildings are mainly of two and three storeys. But there is a marked contrast between the closely built-up character of the narrow streets in the centre, punctuated by the towers and spires of the medieval churches, and the spreading low density suburbs. It is the intimate scale of the central streets with their bands of activity – rather than the quality of individual buildings – that gives the town its essential character.

Immediately north and south of the centre are two open spaces of very different nature – Christchurch Park and the Wet Dock. This juxtaposition of park, shopping centre and port is perhaps the most distinctive feature of Ipswich – presenting problems for cross-town traffic and opportunities for town design.

The pattern of small-scale building is broken only by a few large structures. First to be built were the mills and warehouses on the north side of the Wet Dock, followed in recent years by the Civic College, the Bramford Road flats, the hospital tower, and Greyfriars. Overlooking the inner town from the plateau one is aware first of the grain edge apparently containing it, secondly of the large buildings on the fringes of the historic centre, and lastly of the group of churches and the town hall marking, but not permanently, the heart of Ipswich.

The large buildings near the centre are the main landmarks of Ipswich, together with Cliff Quay power station, the gas holder, the beer super factory, the Claydon cement works with its 400-foot chimney, and the two prominent hills of Sroughton Manor and Mockbeggars Hall. All these lie in the Gipping/Orwell valley, emphasising the line of the river pivoting about the green promontory of Stoke Hill, which forms a southern edge to the town centre and a western edge to the industrialised upper estuary.

These landmarks would be the main reference points in the visual structure of the expanded town. The two new districts would lie on a plateau where there are few natural or man-made landmarks, but they overlook the Gipping/Orwell valley with its succession of focal



2 and 3 storey housing predominating with densities increasing towards main centres.

Factories, warehouses, quays and depots.

shown as

floods.

25 contours with land below 50' O.D. shown shaded.

Landmarks Dominant horizons seen from distant key points. These should remain wooded and some might be crowned by tall blocks. Low buildings should normally be avoided unless combined with dense tree planting.

Woodlands and shelter belts.

Historic centre

New groups of tall buildings emphasising main centres.

New tall blocks, possibly residential, on main hill tops.

Other landmarks: new and existing hospitals, existing flats, industries and Civic College. In addition to those shown, others may be formed by a few blocks of flats, major new factories and offices on the rural fringe



points, and the smaller tributary valley of Belstead Brook.

10.2 Future policy

The physical form of the town should emphasise—

- i the separate identity of existing Ipswich and the two new districts;
- ii the union of all these as a single town.

These aims would be achieved by using the two valleys as the main ordering element in the townscape, at once dividing and uniting its component parts. Free of further building and left open for recreation, the valleys would separate Ipswich, Belstead and Bramford. But containing existing and new landmarks seen from critical points in the town, the valleys would also visually unite the different built-up areas.

The new districts would be largely residential areas, small in scale and varying little in density. Factories would be mainly single storey buildings on extensive sites. On the gently sloping plateau the new districts would not be seen from existing Ipswich or the surrounding countryside, nor would there be long views from most parts of them. Only the district centres, with their concentration of intensive uses, provide an opportunity for tall buildings and dense development. Sited on the edge of the plateau, overlooking the valleys separating Bramford and Belstead from Ipswich, the district centres would have views of the main landmarks along the line of the river, and would themselves be seen from many points in the existing town. These features should be fully exploited in the detailed design so that the district centres become new reference points in the total town structure.

The new urban motorway following the valley from west to east and bridging the head of the estuary would become yet another landmark emphasising the line of the river and linking the existing focal points. The road should be located and designed to exploit views of existing and new landmarks and as itself a key element in the visual structure. The river should be emphasised by further planting to give a soft line in contrast to the hard line of the motorway. There should be prominent buildings or landscape features at Sprooughton Manor; at the hospital adjoining Chantry Park; on the edges of the town centre linking Gonythiers, the dock and the Clive College; and on Stoke Hill, which will be the geographical centre of the expanded town, with the central area extending towards it and the urban motorway on its flank.

All these would help to bind the various elements into a unified town, which should wherever possible be enclosed by a green edge beyond which is the open countryside (figure 55). In the central area the contrast

between the intimate small-scale core and the larger buildings around should be preserved and emphasised in the character of new building and urban renewal (see chapter 8). Belstead and Bramford would each be given a distinct three-dimensional character (see chapter 6).

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The draft *Basic Plan* shows the areas allocated for residential neighbourhoods. These areas include the land required for housing and access roads at the recommended average net density, and the land required for nursery and primary schools, local shops, small open spaces, churches, public houses and meeting places. Though the basic plan does not go into more detail than this, it is necessary at this stage to make assumptions about the number of dwellings of different sizes, standards and densities that will be included in the housing programme. There are three reasons for this—

i To confirm that the proposed residential densities can provide a range of housing to meet the likely need.

ii To provide a basis for an urban design policy showing the height and bulk of buildings in different parts of the new districts.

iii To provide housing costs for the financial appraisal.

The broad objective of housing policy must be to provide a wide enough range of homes to give people a choice of size, standard, tenure and environment, and an opportunity of moving when their circumstances or tastes change.

11.1 Dwelling sizes

A household projection, based on the population projection (on assumptions described in appendix B), shows the number of separate households of various sizes and types to be expected in Ipswich at different dates (figures 59 and 60). In converting this household projection into a housing programme it is necessary to make some assumptions about the mobility of households between dwellings during the course of the family cycle. Most people moving to Ipswich will be young married couples, many of whom will move into a family house if they can, and until their families increase they may have more accommodation than they need. Later on, when the children grow up and leave home, the couple are still likely to be living in the same or a similar house, and once again they will have spare rooms. For the purpose of estimating demand we need to know if, when and on what conditions they are likely to move into a smaller dwelling.

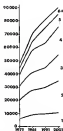
11.1.1 Housing mobility The Ipswich social survey provides some information on mobility, which can be compared with that from a national survey by Cullingworth and his colleagues. The Ipswich survey suggests that relatively few people moving house do so to get one of a different size. Of people who had moved into their present home during the previous five years, only 12 per cent had wanted a larger house and four per cent a smaller one. Of those in Ipswich who wanted to move, 12 per cent said they would like a larger house and 12 per cent

59 Expected household size distribution of newcomers

The number of people in the household is shown on the right-hand side.



60 Estimated household size distribution of the total population



said they would like a smaller one; the proportions were similar among those who actually expected to move within two years. These findings are in line with those reported by Collingworth; he concluded that the main reasons for moving were changes in personal circumstances (marriage, change of job, bereavement, etc.) which accounted for 43 per cent, and a desire for 'better' housing and greater security (a higher-class neighbourhood or a change of tenancy to owner-occupation) which accounted for 38 per cent.

The surveys, both in Ipswich and nationally, show that age is a critical factor in movement. The cycle begins when young new households split off from existing households; mobility reaches a peak among small families with young children, and declines through the later stages of family life to a relatively immobile old age. This is why growing households generally have about the right number of rooms but older households often have more than they need. At all ages the higher a family's income the more likely it is to move. Old people, if they move at all, generally go into the cheapest houses, while middle aged people and small families obtain the most expensive ones.

In interpreting these results it must be remembered that people's preferences are influenced by what accommodation has been available. It is difficult to estimate any hidden demand for smaller homes because most of the dwellings built in the past generation have had three bedrooms.

11.1.2 Accommodation standards in Ipswich There are at present large numbers of one and two person households occupying family homes. In 1961, out of a total of 36,262 households, 15,641 consisted of one or two people, and 9,513 of these (27 per cent of all households) were occupying more than four rooms. Seven of these will have moved into the smaller flats built by the Borough Council since 1961.

11.1.3 The need for small dwellings There are good reasons why small households should be given the opportunity of living in suitable small dwellings. Some types of small dwellings can be built at higher densities, thus contributing to the achievement of a compact town. It is a waste of resources to provide larger dwellings than people want. Properly designed small dwellings can give greater comfort and convenience, particularly for elderly people.

In preparing the housing programme we have assumed that more small households than at present would occupy small dwellings if these were available at the right time, in the right place and at the right price.

11.1.4 Assumed standards For the purpose of the basic plan we have had to make assumptions about the relationship between household size and dwelling size at the end of the expansion period. This has to be done not just for the expansion area but for the whole of Ipswich, since the expansion area will provide homes

for some of the new households formed in Ipswich during the period. We also assumed that some households already established in Ipswich will move into the new districts, and some of the newcomers into the existing town. It is difficult to estimate the extent of this movement but the recent survey showed that more than a third of Council tenants in Ipswich would like to live in a different district or a better house. Much will depend on rent policies yet to be decided. It is likely that these moves will include some elderly people seeking smaller dwellings. The assumed accommodation standards are shown in appendix D and the proposed stock of dwellings in table 11.1. The household projections have been carried forward to 2001 to see whether the range of dwellings built during the expansion period will be broadly suitable on the assumption that there is no further intake of population to expand Ipswich. The recommended long-term accommodation standards are given in appendix D. We have assumed that by the end of the century there will have been enough movement between districts for these standards to apply generally in the expanded town.

11.2 Dwelling types

11.2.1 Family dwellings will amount to about 63 per cent of all new dwellings. They are best provided in the form of one, two or three storey houses, and as all family dwellings are likely to have children living in them at some time, all should have a garden. A variety of sizes, standards and environments will be needed.

11.2.2 Small dwellings have been divided into two main groups—those for young people, and those for the middle aged and elderly—because their needs are different. The younger households wanting small dwellings may consist of single people, living alone or sharing with friends, or young married couples not yet wanting to settle in a family house. Such people will want to be near work, shops, and entertainments and some may like to live in tall blocks if they can afford to.

On the other hand, middle aged couples whose children have left home will want at least two or three rooms and plenty of storage space. Car ownership will be high, heating will be important, and since the middle aged are likely to stay in the same dwelling in their old age, the design should be suitable for old people. There is likely to be a big demand for bungalows from these households because many will want, and can afford, the advantage of a garden, and the quietness and privacy of a single storey dwelling. But other middle aged people will want to take advantage of freedom from family ties to lead a more urban life, and may choose a flat near the central area or a district centre, perhaps with a splendid view over a park or the river, where they are close to all that is going on.

Small households of retired people have similar needs to the middle aged, except that the sharp drop in income

11.1 Proposed housing stock at end of expansion period

	Family houses	Bungalows	Flats suitable for older people	Flats suitable for young people	Total
Existing stock	35,660 (75%)	1,300 (3%)	2,850 (7%)	450 (1%)	40,260
New dwellings	19,280 (82%)	4,620 (17%)	3,350 (13%)	3,220 (7%)	28,550
Total	54,940 (77%)	6,020 (9%)	6,200 (9%)	3,670 (5%)	68,830

usually expected with retirement may prove an economic incentive to move to a smaller and cheaper dwelling, particularly for those renting their homes. Old people are usually attached to their neighbourhood, friends and relatives, and do not often want to move away from what is familiar. Fewer old people seem to want gardens these days. They should be given the opportunity of moving to a flat or a bungalow close to their old home or family.

We therefore recommend the provision of small dwellings of two distinct types: flats and bungalows grouped among the family houses for middle aged and old people, and flats at higher density in the town and district centres for young households and some of the older ones.

11.2 Tenure

11.2.1 National trends The pattern of housing tenure is changing, and changing rapidly —

	Great Britain 1947 %	England 1954 %	England 1962 %	Ipswich 1961 %
Owner occupiers	28	38	43	49
Council tenants	13	20	21	28
Private tenants	51	40	36	23

Source: J. & Cullingworth, *English Housing Trends, and Census*.

New housing today is almost entirely private building for owner-occupation or council building for renting. Since privately rented dwellings are almost all old, we can expect this sector to disappear eventually as old housing is renewed.

The general rise in real incomes expected in the next 15-20 years is likely to lead to further increases in owner-occupation. So is the fact that more people than ever before will inherit the capital value of their parents' or grandparents' houses.

With housing finance as it is today, most people moving in middle or old age are likely to continue the same form of tenure they have held previously. There is no incentive for owner-occupiers to change to unsubsidised rented accommodation, while people who have been renting all their lives do not usually have the capital to purchase a house and would find difficulty in getting a mortgage. Thus most changes in tenure take place when people get married or while their families are growing.

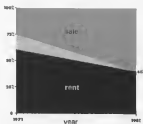
Some social differences between owner-occupiers and renters can be expected to continue; owner-occupiers are likely to include a relatively high proportion of white collar workers with incomes above the average. They may also continue to have household sizes below the average.

11.2.2 Assumptions for Ipswich We estimate that the distribution of incomes in 1971 will allow about 25 per cent of the newcomers to purchase a house if they wish. It is expected that the rise in real incomes by 1981 will enable about 50 per cent of the new population to be owner-occupiers. This is about the proportion in Ipswich now. It is assumed that a majority of people who can afford to buy a house will wish to do so, though some may prefer to rent until they feel settled in the town. The proportion of homes built for sale in the expansion area should therefore start at about 20 per cent and increase steadily so that by the end of the expansion period about half the new dwellings are owner-occupied (figure 81). This has been stated as a Government objective.

Young people in flats will normally want to rent. Traditionally, flats in England have always been rented, but there is likely to be an increasing desire to purchase flats by middle aged and elderly people moving out of owner-occupied houses; we propose that initially ten per cent of flats for middle aged and elderly people should be for sale.

81 Assumed changes in housing tenure

Of the total number of dwellings built up to 1981, half would be for owner-occupation. The grey area represents dwellings that might be built initially for renting and later sold.



11.4 Standards and densities

Three broad standards of housing are suggested to meet different levels of income and different tastes.

About 80 per cent of all dwellings should conform broadly to the standard in the Parker-Morris report, as recommended in the Ministry of Housing's Circular 36/67. It would apply to most rented houses, to about 40 per cent of those for sale, and to some flats.

The intermediate standard would consist of slightly more expensive dwellings for people who can afford larger gardens and integral garages, and more generous standards of space and amenity. It would apply to a small proportion of rented houses, to about half the flats on high density sites, and to about 40 per cent of houses and bungalows for sale.

Dwellings of both these standards would be built at about the same density. Densities on new private and council estates are tending to converge. They should allow for reasonable privacy, for one garage and one extra car space per dwelling, and for every family house to have a garden. At the same time they should be economical in land and engineering services and put everyone within easy reach of public transport and other facilities. A range of 10 to 20 dwellings per net acre is recommended, but most areas would be near the average of about 15.

The highest standard would include some luxury flats for both sale and rent, and detached houses for sale. The density range proposed for the latter is 5 to 10 dwellings per net acre.

The precise proportions of dwellings of each standard to build each year and their density will be decided by the Development Corporation and the County Borough Council. They should take account of the household characteristics of newcomers and of established Ipswich families who want to move to the expansion area. Our proposals are put forward to provide a basis for allocating the right amount of land for housing. They are summarised in table 11.2. If average densities should be lower than we have assumed then land now allocated for expansion after 1981 will have to be built on before that date and subsequent expansion accommodated elsewhere; if average densities are higher the ultimate capacity of Ipswich might be greater, but other aspects of the plan would have to be altered to provide work and services for more people.



11.2 Proposed housing programme for expansion period

(All additional dwellings in Ipswich)

Standard	Total	For Sale			For Rent		
		'Majority'	Intermediate	High	'Majority'	Intermediate	High
Family houses	18,208	4,500	4,862	1,300	7,000	813	—
Bungalows	4,830	1,080	1,310	480	1,200	270	—
Flats suitable for older people (2 and 3 storey integrated with family dwellings)	2,830	—	180	122	1,800	768	280
Flats suitable for older people (high density)	830	—	90	33	328	328	167
Flats suitable for young people	2,520	—	—	—	1,210	1,310	—
	28,808	6,180	6,382	1,806	11,138	2,876	487
			14,477			14,478	

**62 Example of housing layout
Park Hill,
Croydon**

This is a private development with all houses for sale. The density falls within the range recommended for openwork.



63 Park Hill, Croydon

**64 Example of housing layout –
Gleicester Street,
Sheffield**

This is a local authority scheme at a similar density with all houses for renting.



**65 Gleicester Street,
Sheffield**

**66 Example of housing layout –
St. John's,
Walsford**

This is a local authority town extension scheme showing the relationship to a public park.



11.5 Renewal and improvement of existing residential areas

The County Borough Council have been demolishing about 200 unfit houses every year. Up to 1981 the Council expect to demolish a further 500 dwellings that may become units during the period.

There is also the problem of older houses which, though not unfit by present statutory standards, are well below modern standards in amenities and layout. In expanded Ipswich there will be a sharp contrast between the relatively large quantity of modern homes and most of the areas surviving from the nineteenth century. Figure 43 shows the age of housing in the existing town. Between 1870 and 1913 the building rate was about 300 dwellings a year, this means that throughout the planned expansion the stock of dwellings more than a century old will be increasing by 300 a year.

Many of these older homes are now owner-occupied. Some have been considerably improved to bring them closer to accepted standards; others are deteriorating. Most of them are in areas that lack local open space and parking, and where the road layout will not be suitable for the expected growth of traffic.

As pointed out in the recent report of the Central Housing Advisory Committee 'Our Older Homes', the need is not for wholesale clearance and rebuilding but for comprehensive improvement of large areas, including the demolition of some houses to enhance the environment of those that will remain occupied for a generation or more. This would include more provision of local open space and garages or car parks.

Under existing powers the local authority cannot tackle housing in this way. But the problem of 'twilight areas' is becoming one of national concern and it is possible that during the expansion period new powers and financial assistance will be made available.

In writing the draft Basic Plan for existing Ipswich, the areas to be comprehensively improved when powers are available should be defined. Their extent and possible treatment will be an important factor in determining the detailed location and programming of various lengths of the primary road network in the existing town.

11.6 Conclusions

The housing programme outlined above covers the three points raised at the beginning of this chapter—

i The average net density in the residential areas (excluding high density flats in the town and district centres) would be 14.2 dwellings per acre. In 1981 the average size of newcomers' households is expected to be 3.25 persons. The population density would therefore be 46 persons per acre, somewhat below the range of 50 to 60 persons per acre recommended in our first report. But average household size will continue to increase up to 1991 (figures 67, 68, and 69) when the average net density is likely to be about 50 persons per acre. The recommended accommodation standards provide an average of 4.25 bed spaces per dwelling, equivalent to 60 bed spaces per acre. It should be noted that the number of bed spaces per acre is often used in planning reports as a measure of residential density. It determines the maximum number of people that could be accommodated without overcrowding; in practice, the population is usually lower than this.

ii It is clear that the number of dwellings suitable for tall blocks will be relatively small. They should therefore be concentrated mainly in the town centre and the district centres to give visual emphasis to these focal points of economic and social life. Some tall blocks might also be built on certain favourable sites such as Stoke Hill and Sproughton Manor. In the greater part of the expansion area, densities will range from 10 to 20 dwellings per acre. This range does not result in marked contrasts in the bulk of buildings. Visual variety will have to be achieved through the details of design, layout and landscaping.

iii The proposed division of the housing programme between dwellings of three standards, each divided into those for sale and for rent, provides a basis for the housing section of the financial appraisal described in chapter 21.



67 Projected average household size of the established population



68 Projected average household size of the newcomers



69 Projected average household size of the total population

12.1 Established Industry

The increase in employment in existing manufacturing industry has been estimated as 6,000 by 1981 (4.2.2). The average number of workers per acre on existing industrial sites is relatively low, and most firms have stated that the likely growth of employment up to 1981 can be accommodated on their existing sites. There will be a large increase in manufacturing employment at Newton, relatively small increases in most of the other existing industrial areas, and reductions in the town centre and the area east of the Wet Dock. A few firms in the town centre are already considering relocation on more spacious and convenient sites elsewhere; others should be encouraged to do so during the expansion period. The availability of sites in the new districts would facilitate this process.

12.2 New Industry

12.2.1 Employment The number of jobs in new manufacturing industry required in Ipswich during the expansion period cannot be exactly estimated since it will depend upon the quantity of basic offices attracted from London and the build-up of service trades. The maximum need is likely to be for 16,000 new factory jobs; sufficient land must be allocated to meet this maximum need, though it may not all be taken up by 1981.

Two additional sources of employment on new industrial estates must also be considered—

i Firms relocated from the existing town as a result of redevelopment for new and improved roads and other uses; it is impossible to make a firm estimate in advance of detailed plans, but a figure of 3,000 employees seems to be of the right order.

ii Service industries that can best be located on industrial estates. These include laundries, dairies, builders' yards, road haulage depots, warehouses, local authority and statutory undertakers' depots. Studies described in appendix E estimate the total service employment suitable for industrial estates as 6,400 in 1981.

New industrial areas must thus provide for about 25,000 workers, with some room for subsequent expansion.

12.2.2 Acreage The number of workers per acre of industrial land varies considerably between one type of industry and another. We do not know what industries will be attracted to Ipswich. The average density of the larger industrial estates in all the earlier new towns is much the same as a result of the great diversity of factories there. We may expect Ipswich to have a similar experience. But average density is likely to be lower than in

the earlier new towns owing to the growth of automation and the need for more roads and car parks.

Allocations of industrial acreage must allow for expansion of employment after firms have settled in. Most firms that move to new towns have been growing before they move and continue to grow after it. This means that densities gradually increase as expansion land is occupied by factory buildings, a result that is often overlooked in new town master plans. It is true that the increase in automation may at the same time be lowering densities; but this might be balanced by increases in shift working (so that more people occupy the same area during a working day), and in the proportion of office and research workers. Projections of industrial density are discussed in appendix E where it is shown that industry is likely to have about 30 workers per gross acre initially, rising to about 50 per acre after postwar years. This means that the area required for new industry in 1981 could be about 600 acres. In order to provide for the growth of newly established industries after 1981 and to give some flexibility in programming industrial development, the Urban Structure Map shows a somewhat larger area for new industry.

12.2.3 Industrial estates Two types of industrial estate are proposed—

- i Large industrial estates of conventional type.
- ii Smaller industrial estates within the residential neighbourhoods.

The Urban Structure Map shows five major industrial estates in the new districts. They range from 57 to 208 acres. They are therefore big enough to provide the advantages of industrial concentration—

- a A range of sites of different shapes and sizes is available for letting at any given time.
- b A smaller area of land need be reserved for expansion since it can be available to a number of factories, not all of which will require it.
- c Common services can be provided, e.g. banks, post offices, canteens, etc.

Industrial estates should be no larger than is necessary to enjoy these advantages. The smaller they are the more widely distributed they can be, with the advantage that traffic is spread more evenly over the main road system, that peak flows are in both directions, and that more people can live within walking or cycling distance of their work.

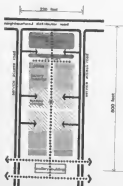
Each of the industrial estates in Bramford and Salestead has direct access from one or more of the town distributor roads, and they have been placed as close as possible to junctions with the regional roads A12 and A45. They are sited on the edges of the districts so that they can expand outwards if the maximum estimated acreage should eventually prove too small. They will be partly screened from residential areas and the surround-

70 Plan of the first new industrial estate



71 A typical block in the industrial estate^a

This area would provide four units, each with 20,000 square feet of covered and uncovered industrial space. The dotted lines show pedestrian routes. Ancillary buildings could include canteens, shops, recreational facilities, and provision for statutory undertakers.



ing countryside by existing and new woodlands.

The reasons for proposing neighbourhood industry have been given in section 6.5.4. Such sites will not be suitable for all types of industry because factories there will have to be good neighbours to the nearby housing. Some restrictive conditions would have to be agreed, but the general trend appears to be that fewer and fewer factories can be regarded as a nuisance. Studies described in appendix E suggest that about a quarter of total factory employment may be suitable for neighbourhood industrial areas. The average density of workers per acre may not be higher than on the main industrial estates because neighbourhood industry should be surrounded by thick planting. Each estate should be between 30 and 40 acres. Sites are not shown on the Urban Structure Map because they would be decided when each neighbourhood is planned in detail.

Neighbourhood industry would be something of an experiment. But the plan does not commit Ipswich to it. If the demand is smaller than we expect then later neighbourhoods can be designed without industry and the major industrial areas enlarged. Neighbourhood industrial areas are also suitable for essential uses such as telephone exchanges, fire stations and petrol filling stations.

A small new industrial area is shown between the railway and the proposed new quay on reclaimed land at Hedfield. If this proposal is approved, the area should be reserved for industries requiring direct access to the port; it may be suitable for firms that have to move from Thoresme, as well as from the central area of Ipswich.

Another small industrial area is shown beside the proposed railway freight terminal in the north of Broomfield district. This would be suitable for warehouses associated with the terminal.

Land at Nacton held by a major engineering firm for future expansion has been shown as existing industry. So has the whole of the existing industrial area between Hedfield and Sproughton Roads, though there is some land available there for new factories.

Figures 70 and 71 are sketches of a possible layout for the first new industrial estate.

Offices may be considered under three heads—

i Those attached to factories, hospitals, colleges and other land uses (ancillary offices).

ii Those directly serving the town or the sub-region, including local government and professional offices (residential offices).

iii Those with a national or regional function, e.g. head offices of national organisations, or branches serving the whole of East Anglia (basic offices).

About 20 per cent of the labour force in Ipswich at present are office workers. They are mainly in ancillary and residential offices, which are likely to maintain a constant proportion of the growing labour force. But if the town becomes increasingly attractive to offices decentralising from London, the proportion in all offices could rise to 25 per cent or even more. There could thus be an increase by 1981 of some 10,000 to 16,000 office workers.

It is not possible to show numerically the relation between additional office workers and land allocations. Ancillary offices are covered by the land allocated for the use they are attached to, e.g. factories, schools. Much of the increase in residential offices will be in shopping centres or in converted houses in suitable parts of the central area. Offices decentralised from London will form part of the town's economic base; in this sense they are an alternative to factory employment, bringing newcomers with different occupations and widening the opportunities for the growing labour force.

13.1 Government offices

13.1.1 National government The Ministry of Public Building and Works is taking some 64,000 square feet of completed offices in which to accommodate most of the Ipswich branches of government departments.

About 5,000 square feet would be required in each district centre for the local offices of the Ministry of Labour and the Ministry of Social Security, and possibly 10,000 square feet in one centre for the Inland Revenue.

The General Post Office will need two acres in the town centre for sorting and administrative offices. The new building will replace the present ones in Fleece Street and Cornhill, but the G.P.O. will need a new public office in the shopping centre when the Cornhill building is relinquished. There would be post offices in each of the district centres; the larger neighbourhoods should have sub-offices in local shops.

13.1.2 East Suffolk County Council The present County Hall on the eastern edge of the town centre is unsuitable and too small. The County Council have considered rebuilding in the town centre, or in another part

of Ipswich, or outside the County Borough. A site of up to 11 acres for a new County Hall could be made available close to the new Civic Centre, forming a local government area in the western part of the town centre (figure 65).

13.1.3 Development Corporation The Ipswich Development Corporation, to be established under the New Towns Act 1965, will have a large administrative and technical staff during the period of rapid expansion. Earlier Development Corporations have generally set up their office in a large country house in the designated area. In the expansion of an established large town the Development Corporation may consider it more appropriate to have its office in the town centre close to the Civic Centre.

The Development Corporation would also require housing and information offices of perhaps 2,500 square feet in each of the two district centres.

13.1.4 Ipswich County Borough Council Construction of the new Civic Centre on the western edge of the town centre is now in progress. All the departments of the Council will eventually be located there. The plans provide sufficient floor space to accommodate the additional staff needed for the larger town.

The Borough Council may also require housing and welfare offices of about 1,000 square feet in each of the two district centres. It would be convenient for the public if these could be combined with the district offices of the Development Corporation.

13.2 Private offices

13.2.1 Local business and professional offices These generally serve the whole sub-region. They are likely to remain predominantly in the central area where they are most accessible to clients and to each other. A survey of local professional firms in 1965 showed that most of them intend to expand to serve the growing population and expect to increase their staff by about 50 per cent. Some will need larger premises and some new firms will also be established.

These offices do not usually seek accommodation in large new buildings because of the high rents and difficulty of public access. They prefer premises over shops or in converted houses close to the main shopping centre, such as those in Museum Street, Elm Street, Arcade Street and Northgate Street where professional and business offices are at present concentrated. A number of insurance companies and building societies are in purpose-built offices in Princeps Street, and others are scattered about the shopping centre. There are several streets in the central area where some houses

have been converted to offices and where further conversions might be appropriate, e.g. Lower Brook Street. Professional offices are a suitable use for some of the groups of older buildings that should be preserved.

Some of the additional professional and business offices would be in the district centres. They may include branch offices of solicitors, estate agents, typing and duplicating agencies, etc. already established in the town. Others would be branches of banks, building societies, and insurance companies. It is not possible to make an accurate forecast of their requirements but it might be of the order of 40,000 square feet in each district centre — say 20 firms with an average of 2,000 square feet.

13.2.2 Basic offices Ipswich is likely to prove attractive to some of the growing number of offices decentralising all or part of their operations from central London, especially to those that retain an office near Liverpool Street. The forthcoming electrification of the railway will reduce the journey time to one hour. But Ipswich will be in competition with other new and expanding towns so it is difficult to forecast how many offices will move. The plan must show a variety of locations that could be used for office development but that would not prejudice other developments if not taken up for some years.

Basic offices can be offered three types of site — in the town centre, in a district centre, or on the rural fringe.

i Town centre The Location of Offices Bureau takes the view that most offices decentralising from London will seek a town centre site. Its advantages are —

- a public transport from most parts of the sub-region;
- b a wide range of supplies and services close at hand;
- c proximity to the railway station;
- d close to shops and restaurants for staff and visitors.

Redevelopment of parts of the triangle between Pinces Street, St Peter's Street and the river would provide a number of excellent sites for large office buildings between the station and the main shopping centre and close to the urban motorway.

ii District centres Their advantages over the town centre are —

- a closer to homes of potential staff;
- b closer to open space,
- c cheaper land;
- d easier accessibility by private car.

They are further — though not too far — from the station, and would have a smaller range of shops and services close at hand. District centres might be attractive to some of the smaller decentralised offices.

iii Rural fringe Offices on the outskirts of the town would have the benefit of the cheapest sites, and a park-like setting providing attractive working conditions and room for expansion. A number of sites — some with

attractive large houses — could be acquired by the Development Corporation and made available for early office development. They might suit the larger and more self-sufficient businesses and research establishments that could run canteens and special buses for their staff.

Office Development Permits are at present required for new office buildings in East Anglia. When the expansion begins permits should be made readily available in Ipswich where office development can help reduce congestion in London. The Development Corporation and the County Borough Council should at an early stage acquire suitable sites in the central area and on the fringes of the designated area and publicise their advantages for offices. The Borough Council already have some suitable land in the town centre.

14 Social services

14.1 Education

The draft Basic Plan is being prepared at a time when the country's educational system is undergoing major changes affecting the size and grouping of schools for different age groups. Neither national policy nor its interpretation by the Local Education Authority are yet decided. The plan proposes a distribution of schools that can be adapted to a number of different educational arrangements, while giving full weight to broader social considerations and to the place of schools in the total urban design.

14.1.1 Primary schools The Urban Structure Map does not show primary school sites; these will be decided when each neighbourhood is planned in detail.

The transfer from primary to secondary education, whether it comes at the age of 11, 12 or 13, will still be the main break in a child's school life. In our view, children of primary school age should as far as possible have the opportunity of education within their own neighbourhood.

There are two planning advantages in making primary schools as small as educational policy will allow—

- i the smaller the schools the shorter the maximum distance any pupil has to walk;

- ii the smaller the schools the more sites there are to punctuate residential areas without disrupting their pattern.

Ipswich Education Committee at present favours two-form entry primary schools. These can be within a quarter of a mile of most homes at the proposed residential density. The larger of the proposed neighbourhoods would support two of these schools, and most of the smaller neighbourhoods one. The few very small neighbourhoods could either have one-form entry schools, or rely on schools in adjacent larger neighbourhoods, underpasses being built to ensure safe journeys over main roads. If the Local Education Authority should decide to split primary education between infant schools (5-7) and middle schools (8-11/12), then the larger neighbourhoods could have either two two-form entry middle schools, or one four-form entry middle school. The latter should be in a central position and not grouped with any of the infant schools, so that school sites are not too big.

In calculating gross residential density an allowance of 1.5 acres per thousand people has been made for primary schools. This includes provision for nursery classes as recommended by the Plowden Committee, and is based on a primary-secondary break at 12. If the break is earlier or later the land requirement will be slightly different; adjustments can be made when neighbourhoods are designed in detail. The land requirements will not be greatly affected by differing numbers of one-form, two-

form and four-form entry schools.

Owing to the age composition of the newcomers there will be fluctuations in the number of primary school children in each neighbourhood. Since each new district would be built over a short period (chapter 20), contiguous neighbourhoods would usually have a similar age composition, so there would be little scope for dealing with the fluctuations by enlarging school catchment areas. It might be necessary to use mobile classrooms.

Some of the primary schools may be run by the Church of England or the Roman Catholic Church. These would have a larger catchment area, perhaps extending to a whole district. Denominational schools could be allocated sites in the larger neighbourhoods near to the district centres, where they would be conveniently situated to use public transport.

14.1.2 Secondary schools The Urban Structure Map shows four areas of approximately 95 acres each, one on the inner edge of each district near the centre and one on the outer edge. Each area would accommodate two large comprehensive schools. In these locations their extensive playing fields could adjoin the general open space system, and the large groups of buildings could be integrated with the landscape. They would have access from the primary road network, with its bus routes, and from the pedestrian network, by bridge or underpass. The size of the sites can be adjusted when the required number of places is known.

In the existing town the Local Education Authority propose comprehensive schools for children up to 16, and separate sixth form colleges. In view of the need to foster the social unity of the expanded town, and to encourage mobility between old and new districts, it seems to us undesirable that two different systems of secondary education should become a permanent feature of Ipswich. The Local Education Authority may wish to consider the eventual establishment of a single system for the whole town, as opportunities for regeneration arise.

14.1.3 Special schools The need is not yet clearly defined. As they will serve a wide area they should adjoin the open space on the Ipswich side of the new districts.

14.1.4 Higher education The East Anglian Regional Advisory Council for Further Education has recommended to the Secretary of State for Education and Science that a Polytechnic be established in East Anglia. After considering the cases made by Ipswich and the two other local education authorities who wanted the Polytechnic in their areas, the Advisory Council has expressed the view that it should be in

Ipswich. There are universities in Cambridge, Norwich and Colchester; Ipswich will soon be the largest and fastest-growing town in East Angles and one of the biggest towns in the country without an institution of higher education.

In our view, a Polytechnic should be located in the heart of the town where it could forge close links with the local community and provide an outstanding group of buildings, and where students could have easy access to central services. A total of 60 to 80 acres would be required for the college buildings, halls of residence, and playing fields—but these need not all be on the same site. The college buildings could be near the present Civic College, creating an educational area in the eastern part of the town centre. Student housing could overlook the river in the southern part of the central area.

The County Borough Council and East Suffolk County Council are actively considering the establishment of a teacher training college. Salsford House, already used by the County Council as an educational centre, would be an appropriate nucleus, and the site is shown on the Urban Structure Map.

14.1.6 Further and adult education. Even after the establishment of a Polytechnic, the Civic College would continue to be an important centre of further education for the sub-region. It is desirable that there should also be provision for further education and adult education in the new districts, close to people's homes and workplaces. The district centres would be ideal locations for small colleges which could provide distinguished architecture and help to establish each centre as a focus of cultural and recreational activity.

14.2 Health and welfare

14.2.1 Hospitals. There is a shortage of hospital beds in the sub-region and the main hospital in Anglessea Road is old and expensive to run. The East Anglian Regional Hospital Board proposes to start building in 1983 a district general hospital of 1,100 beds at Heath Road on the eastern outskirts of Ipswich. This hospital must be completed as soon as possible if the expanding population is to be adequately served.

By the mid-1970s a second new general hospital will probably be required. It should be located on the west of Ipswich where the major expansion would take place and should be readily accessible from all parts of the sub-region. A site of 50 acres is required, preferably close to a district centre. It should include a helicopter landing space. The draft Basic Plan shows a site for this hospital between Safford district centre and Chantry Park.

The psychiatric hospital at Woodbridge is to be closed and this branch of the health service for the sub-region concentrated at the St Clements site in east Ipswich where there is enough undeveloped land.

14.2.2 General practitioners and local authority clinics. The most likely pattern for these services is groups of about six doctors in buildings separate from but adjacent to local authority offices; each pair of buildings would serve about 16,000 people and would require about one acre. There would be a clinic and group practice building in each district centre and the others should be close to local shops and primary schools. The district centre clinic would provide the most specialised services.

General practices in the existing town will probably take patients from the expansion area, and some doctors and dentists could be provided with individual consult-

ing rooms in the new neighbourhoods.

14.2.3 Old people. Homes for old people may be needed in the expansion area by 1981. The need will increase sharply towards the end of the century. They should be sited in the neighbourhoods, close to meeting places, shops and public transport routes. Flats and bungalows specially designed for old people would be incorporated in the residential areas.

There should be a day centre in each of the district centres where old people can meet, read the papers and get meals.

14.2.4 Handicapped people. A handicraft centre should be built in one of the district centres, and a training centre near one of the industrial areas.

A proportion of houses in each neighbourhood should be built with larger doors and passages and other special features needed by handicapped persons. Public buildings and shopping precincts should have ramps for wheel chairs.

14.2.5 Children. Two small hostels may be needed for boys and girls of 15 to 18; they should be in one of the neighbourhoods close to an industrial area.

One home will be needed for boys of 13 and over and this should be near a secondary school and district centre.

14.2.6 Day nurseries. These may be provided by the local authority, by industrialists, or by other private interests. They should be located in the landscaped areas surrounding neighbourhood industrial sites for the convenience of working mothers, and also in the town centre.

14.2.7 Ambulance stations. An ambulance station will form part of the new Civic Centre. A second one may be needed and should be located in Bramford district centre near the second new general hospital.

14.3 Other services

14.3.1 Police. The new Suffolk police authority came into operation on 1 April 1967. It will require a new headquarters with good access to all parts of East and West Suffolk; a suitable location might be close to the new A45 in the north of the designated area.

A new central police station for Ipswich is now being built as part of the Civic Centre.

There may also be a police station in each district centre, one of which might be a divisional headquarters.

14.3.2 Law courts. New borough courts are being built in the Civic Centre. A new assize court and county courts could form part of the new County Hall, adjacent to the Civic Centre. No courts will be required in the expansion area.

14.3.3 Fire Service. The Suffolk Fire Service headquarters is in Colchester Road, Ipswich. A new station is needed by 1970 to replace Bond Street station and serve the southern part of the existing town, including the port. A site of half to three quarters of an acre should be near the new A45. Each new district would have a fire station with a site of two acres, including staff housing. It should be centrally placed, with good access to the industrial areas and the regional roads. It could be in a neighbourhood industrial area adjoining the primary network close to one of the intersections with A12 or A45.

15 Community activities

15.1 Churches

The Suffolk Ecumenical Committee, representing most Christian denominations, has put forward the idea of ecumenical centres instead of denominational churches. Each centre would have two halls for worship, one hall for meetings and other activities, and four houses for ministers. It would require about two acres and would serve some 15,000 people. Four ecumenical centres would be needed in each district; one should be in the district centre.

Denominations preferring to have their own places of worship could be allocated sites in the district centre or the neighbourhoods.

15.2 Public houses

There should be licensed premises in most of the residential neighbourhoods. A standard of one public house to about 5,000 people, which has been achieved in the earlier new towns, would allow the larger neighbourhoods to have two pubs. It would add to the variety of social provision if some smaller, more intimate pubs could be built in neighbourhoods with fewer than 5,000 people.

15.3 Meeting places

15.3.1 Concert hall A hall to seat 1,850 is included in the plans for the Civic Centre. Designed primarily for music, it will also be available for other events.

15.3.2 Conference hall The Civic Centre will also include a conference hall to seat 400 for a meeting and 250 for a banquet.

15.3.3 Local meeting places A great variety of meeting places will be needed for voluntary activities in the new districts. Some will be provided in ecumenical centres, some organisations may build their own, some may meet in pubs. But there will be a need for publicly provided meeting places. There should be a large hall and a number of small halls in each district centre; these might be part of the colleges of further education. The Development Corporation should provide a small meeting hall with kitchen and committee room in each neighbourhood at an early stage in its development. In the larger neighbourhoods a community centre might be needed. It could be combined with a clinic and a branch library. The new meeting places would be used by some organisations serving the whole town; this would help to meet the deficiency in existing Ipswich.

15.3.4 Youth clubs Youth clubs may be run in the proposed ecumenical centres, while some organisations, e.g. the Scouts, may provide their own premises. But the Development Corporation and the local authority will have to provide buildings in which a number of youth organisations can meet for a variety of activities. These should not normally be attached to schools or colleges but should be separate buildings that teenagers can look on as their own preserves. In our view, there should be youth centres in central Ipswich and in each of the district centres.

15.4 Libraries

There is a central library in Northgate Street and four branch libraries, one library building to about 25,000 people in existing Ipswich. There should be a library in each of the new district centres; part-time library facilities might also be provided in some of the neighbourhood meeting places or in mobile units.

15.5 Museum and art gallery

These are in High Street, close to the shopping centre but not well situated to attract casual visitors. It would be an advantage if the museum and art gallery could be moved to a site on one of the main pedestrian routes in the town centre. One or more of the churches or another historic building might make good homes for them.

15.6 Theatres

A new theatre to seat 600 is included in the plans for the Civic Centre and programmed for 1968/69. This will be leased to the Ipswich Theatre Trust.

The present arts theatre is an attractive building which should be retained for amateur performances.

15.7 Cinemas

The three large cinemas in the town centre are likely to be able to cater for the increased population.

15.2 Swimming pools

There are two small indoor pools in the town centre. A competition pool should be built either in the town centre or the proposed sports centre (chapter 17). The proposed colleges of further education might provide swimming pools in the new districts.

15.3 Other facilities

The bowling alley and greyhound stadium on the edge of the town centre are capable of meeting future demand.

The Savoy ballroom is at present used exclusively for bingo. There is a new dance hall at Greyfriars.

16.1 Shopping

A policy for the distribution of the main shopping centres was set out in our first report. It is a vital part of the proposed sub-regional strategy and a major factor in determining the general form of the Ipswich expansion. The essential elements of the policy are—

i The central area to remain the principal shopping centre, providing most of the occasional and specialist shopping and much of the monthly shopping for the whole sub-region, with weekly shopping for most of existing Ipswich and daily shopping for people living or working nearby.

ii Two district centres to provide the weekly and some of the monthly shopping for the main expansion area and for the small towns and villages south and west of Ipswich.

This policy was supported by estimates (in appendix E of the first report) of retail expenditure on different classes of goods in 1961. Any current changes in these estimates would not be of such a magnitude as to affect the basic policy for shopping centres. But expected changes in expenditure during the next few years will determine the amount of shopping floor space to be provided at each stage in the development of the centres. We therefore recommend that forward estimates of retail expenditure — on the best assumptions available at the time — should be made before designing the district centres in detail and before any more planning consents are given for major shopping projects in the town centre.

16.1.1 Local shops In addition to the main centres there will be a need for local shops closer to people's homes. They should be as widely distributed as the economics of retailing and the habits of consumers will permit. Local shops give an essential service and provide informal meeting places as well.

Local shops can be either isolated 'corner' shops or groups of six or more, including a chemist, grocer, green-grocer, baker, newsagent/confectioner and butcher.

If isolated shops could offer a sufficiently wide range of goods then they might become the only form of local shopping. There could be one such shop to about 1,500 people, putting every home within 400 yards of a shop, except in the smallest neighbourhoods.

If groups of shops are preferred, then each would need the support of about 5,000 people, and they must therefore be farther away from some of their customers. The larger neighbourhoods might have one or two local centres and two or three isolated shops, the medium-sized neighbourhoods a local centre, and the small neighbourhoods a single shop.

Local shops should be sited close to primary schools, open spaces and bus stops. They generate some traffic

and should therefore be near an intersection with the primary network and have some car parking. But they should also have pedestrian links with the whole of the area they serve.

The district centres would provide local shopping for people living close to them.

16.2 Warehousing

Ipswich is an important centre of the wholesale trade. This is likely to grow to serve the expanding population of the town and the sub-region, and – for some goods – the whole of East Anglia. Methods of wholesale distribution are changing rapidly and we have been unable to predict its future requirements, except for a broad estimate of the numbers likely to be employed. The traditional cramped warehouse site near the town centre is tending to give way to a large out-of-town or suburban site near the regional road network. Most warehouses do not need to be closely related to other land uses, though some, e.g. milk distribution depots, must be well placed to serve the residential areas. Most of them can probably be sited on industrial estates and an allowance has been made for them in estimating the amount of industrial land required (appendix E).

Most of the existing warehouses are in the central area and it is hoped that most of these will eventually be re-located on industrial estates. Warehouses at present

occupy some 60 acres in the central area and it is estimated that only 16 acres of these require to be near the port or other central uses. Some of these may require relocation to make way for new roads or car parks and alternative sites would be required. Sites might also be required in the central area for storage closely linked with retail shopping (e.g. for furniture). There may be a need for further storage facilities linked with the port and these could best be provided in association with the proposed new quay at Halifax.

16.3 Hotels

Ipswich is not well provided with hotels in the central area though there has recently been some expansion of hotel facilities on the outskirts. Expansion will bring the need for more accommodation and for a hotel of higher standard than any of the existing ones. A new luxury hotel might be built in the centre or in a cheaper and quieter location overlooking one of the parks and close to the regional roads. It must be sited where adequate car parking can be provided.

Some hotel bedrooms might be provided at one of the public houses in each of the new district centres.

Because of the high cost of building new hotels, it is likely that there will be a continuing need for most of the existing accommodation in the central area.

72 The Gipping at Sprooughton
The riverside park and sports centre would appear to the right.



17 Open space and landscape

One of the outstanding features of Ipswich is its fine urban parks. The plan seeks to ensure that the expansion area enjoys equally good open spaces, with a system of green areas, taking advantage of the long stretches of river and the many existing woodlands.

The Urban Structure Map shows two types of open space. In addition to the sports centre, the cemetery, and occasional playing fields. The first type includes public and private playing fields, golf courses, allotments, some parks, and some riverside land liable to flooding that should be available for public enjoyment but receive only minimum maintenance. These different uses have not been distinguished on the map; suitable land from the open space reservation should be made available for each category as the demand arises. The second type of open space is woodlands, including most of the new parks and roadside tree belts.

A large area of open space is needed for the following reasons—

- i To provide sufficient parks and playing fields for the population of the expansion areas and to make good the deficiency of playing fields in Ipswich.
- ii To preserve all the existing woodlands and to plant new ones to give protection from the prevailing winds.
- iii To provide adequate visual and sound barriers for main roads and industrial areas.
- iv Because of the extent of land liable to flood in the valleys of the Gipping and Belsted Brook.
- v To provide attractive sites for out-of-town offices (chapter 13).
- vi To use the attractions of the area to meet regional needs, e.g. for golf courses and riverside picnic places.

Open space of all kinds on the Urban Structure Map amounts to 25 acres per thousand of the ultimate population of 273,000 in the expanded town. This is similar to the provision made in recent plans for new towns.

17.1 Woodlands

More than half the parks, woodlands and roadsides planting shown on the Urban Structure Map already exist; the remainder should be progressively planted in advance of building construction. In Belsted the larger woodlands mark the southern boundary of the district and there are others among the neighbourhoods. In Bramford most of the woodland is new planting fringing the main roads and industrial areas.

It is suggested that some of the woodlands should be run as educational nature reserves. The Nature Conservancy would assist in setting up the necessary machinery to manage such woodlands, would help to prepare suitable management plans and be available as a advisory capacity. In similar cases elsewhere in the

country the management of educational nature reserves is under the aegis of the Local Education Authority which sometimes delegates its responsibilities to the local naturalists' trust.

Public access to woodlands should be made as free as possible, but first there should be a programme of selective felling and replanting, fencing, construction of paths and car parks, provision of seats and picnic places, accompanied by public education through schools and voluntary organisations. The good management of existing and new woodlands can contribute a lot to the quality of the urban environment. Some might be commercially exploited to help meet the cost of management.

17.2 Sports centre

A site of 20 acres in east Ipswich was included in the approved Ipswich Development Plan. It is too small and on the wrong side of the town to serve expanded Ipswich and the sub-region. A site of 85 acres at Sproghon Minor is shown on the draft Basic Plan. It is close to the regional main roads and will be seen by many people entering or passing through the town. The sports centre should provide for athletics, cycling and tennis and include a multi-purpose games hall.

17.3 Cemetery and crematorium

The existing crematorium will be able to serve the expanded town for many years. But an additional cemetery will be needed and a site of 63 acres has been allocated between Holbrook Park and Cutlers Wood.

17.4 Seaside drive

The Urban Structure Map shows a proposed scenic road running from Freston along the edge of the Orwell estuary and continuing (without intersections) through the valley of Belsted Brook. It would give access to picnic places on the riverside and other recreational facilities along the valley. The route would make use of part of the existing road along the Strand when A138 has been diverted past Belsted district centre. It would be a narrow road with curves to discourage high speeds, and would have small laybys for up to ten parked cars at frequent intervals.

- 73 Part of the Ipswich northern ring road is very well landscaped . . .

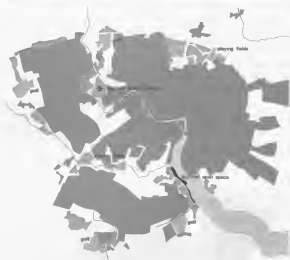


- 74 . . . and part is not
The primary road network should whenever possible be treated in a way as good as the road in the first example



- 75 Distribution of major new open space

The bulk of these are playing fields though provision would also be made for golf courses, regional recreation facilities on the banks of the estuary, and the sports centre



17.5 Landscape policy

It is an important objective of the draft Basic Plan to perpetuate the Suffolk tradition of a compact urban area in a green setting, with a sharp contrast between town and countryside. From outside, the built-up areas should be seen framed in trees; from inside, the edge of the town should be seen as a green skyline not dominated by buildings. Within the built-up areas trees will be equally important in enclosing clusters of housing and screening main roads and industrial areas. There should be planting for these purposes within the existing built-up area (figures 73 and 74). More planting is also essential to protect the town from the strong winds blowing across the open East Anglian countryside.

Early arrangements should be made for the supply of saplings, and planting should precede building whenever possible, some areas being used as temporary tree nurseries. It will be necessary to arrange for part of the surface water run-off to go to soakways to maintain the supply of ground water to woodlands within the built-up area.

The countryside on the edge of the town should be well cared for and in good heart. The plan attempts to further this objective by giving the town an edge of woodlands, industry, secondary schools and low density high standard housing – uses that will interfere as little as possible with adjacent agriculture.

78 Electricity supply

The thick lines show the 400 kv overhead transmission lines which converge with the 132 kv lines at Bullen Wood. The main substation there is shown by the square. The broken lines show where the 132 kv lines should be put underground and the circles where the transformer stations serving the districts with their 33 kv supply should be located.

18.1 Electricity

18.1.1 Overhead transmission lines A number of 132 kv and 400 kv overhead lines cross the proposed designated area. These are linked to the generating station at Cliff Quay (258 megawatt capacity) and to the major grid supply point at Bullen Wood in the Bramford district.

So far as possible the layout of the new districts has been arranged to prevent overhead lines cutting residential areas. Only four miles of cable (out of a total of 14 miles in the proposed designated area) need be put underground to secure a satisfactory layout (Figure 78). The cost of this would have to be borne by the Development Corporation and has been included in the financial statement.

There is a proposal for a 400 kv line from the south to Bullen Wood. A 132 kv line to connect with a new grid

sub-station in the north of Ipswich may also be needed in the early 1970s. These new lines should be routed to avoid proposed residential areas.

18.1.2 Sub-stations Two 132/33 kv grid sub-stations (each on about 5 acres) would be required to serve the new districts. One will be adjacent to the Bobbinhole sewage works and would serve new residential areas at Chantry and Sooks Park as well as the Belivedon district. The other — to serve the Bramford district — would be adjacent to the major grid supply point at Bullen Wood. Each of these sub-stations would contain two large transformers and associated switch-gear; they should be well screened by trees.

There would be a need for four 33/11 kv primary sub-stations to serve residential and industrial areas within a radius of 1½ miles. Each would have a site of approximately 120 feet x 100 feet. They should be located in industrial areas or roadside woodlands.

18.2 Gas

18.2.1 Supergrid Eastern Gas are at present laying a section of 24-inch supergrid pipeline from Hasketon to Broomfield across the north of Ipswich. It will be continued to Colchester in 1968, and will be routed around the Bramford district.

18.2.2 Local distribution The first expansion areas would be fed from the existing Ipswich to Colchester gas main alongside A12. Later development areas would be linked either to existing mains or to the new supergrid.

The distribution network would consist of high/medium pressure mains alongside the primary road network. This high pressure gas would be reduced to the domestic level by governors (approximately two per 10,000 people) on sites about 20 feet square.

No additional gas holders will be needed in Ipswich.

18.3 Water

In the first report we said: 'Action to increase water supplies to the sub-region is urgently needed so that the steady expansion of Ipswich will not be held up by lack of water.' The problem is being considered by our clients independently of the report, and we understand that a solution will be found in time for the expansion to proceed.

Two service reservoirs, each of five to ten acres, would be needed for the expansion areas. They could be at Flowton and Copcock.

The Ipswich Water Authority urgently needs a site of three to four acres for a new depot.



18.4 Drainage

18.4.1 Sewage disposal One of the reasons for the proposed location of the Belstead and Bramford districts was that the whole expansion area could be served by a single sewage treatment works. The greater part of the area lies within the natural catchment area of the Belstead Brook or where interceptor sewers can drain by gravity to its catchment area. The sewage from some small parts of each district would have to be pumped – the lower-lying parts of Bramford, near Bramford and Sproughton villages, and the southern part of Belstead in the catchments of the Tattingstone and Freston brooks. Figure 77 shows the lines of trunk sewers to serve the new districts.

In conjunction with the Borough Engineer and Sur-

vveyor a study has been made of three possible sites for a new treatment works –

- i at Bobbitshole (close to the existing works,
- ii at Bourne Bridge near the mouth of Belstead Brook,
- iii at the mouth of Freston Brook.

A works at Bourne Bridge would cause the least nuisance to residential areas but this site was considered unsuitable because the large expanse of filters and tanks could not be adequately screened. There is little difference between Freston and Bobbitshole in respect of amenity, but a new works at Freston would cost considerably more. We therefore recommend that the new works should be sited at Bobbitshole. Development closest to Bobbitshole would be non-residential and the works should be sited as far from the valley bottom as possible and must be set amidst thick planting.

18.4.2 Surface water The run-off from Belstead would be to Belstead Brook and Tattingstone Brook and from Bramford to the Gipping and Belstead Brook. The Gipping and Belstead Brook are controlled by the East Suffolk and Norfolk River Authority, and Tattingstone Brook by the Essex River Authority. The two authorities are considering how to improve the waterways to cope with the increased run-off from the new built-up areas.

18.5 Telecommunications

Two or three new telephone exchanges would be needed to serve the new districts. They could be sited in neighbourhood industrial areas.

The main Ipswich exchange in Portman Road will be extended.

A telephone engineering depot of 2½ acres is required and could be sited in one of the major industrial areas.

18.6 Refuse disposal

The County Borough already requires a new tip for domestic refuse from the existing town; expansion will accentuate the problem. There are few sites with good road access, short haulage distances, and low amenity value.

As a short-term measure, refuse will be tipped in Braziers Wood between the airport and the Orwell; this site can only absorb small quantities of refuse without harming the character of the area.

A study should be made to find a long-term solution, which might include greater destruction of refuse, sorting and salvaging, and dumping in the sea.

18.7 Service reservations

Since most of the engineering services – electricity, gas, telecommunications, water, domestic oil supplies – require distribution mains along the major roads, service ducts (readily accessible without disturbing roads) should run alongside the primary road grid within the areas set aside for planting.

In the future other domestic services, e.g. district hot water, may be placed in pipes; the setting aside of service reservations alongside the primary road network would enable this to be done.

Sewers should also follow the service reservations wherever possible; manholes should never be located in main roadways but should be accessible to service vehicles parked off the roadway.

77 Trunk sewers



13.1 Roads

The road system of expanded Ipswich would be based on the now generally accepted principle of a hierarchy of road types. Roads of each type have interactions only with the types immediately above and below them in the hierarchy; the higher the status of a road the fewer intersections it has and the faster speed it is designed for.

There would be four types of road—

- | | |
|--------------------------------|---------------------|
| i Regional roads | } Primary network |
| ii Town distributors | |
| iii Neighbourhood distributors | } Secondary network |
| iv Access roads | |

Types i and ii together form the primary network which is shown on the Urban Structure Map (foldout). The main principle which has governed the layout of the network is that non-calling traffic should not have to enter residential neighbourhoods, industrial areas and

the town centre. This is only possible if there is an efficient primary network that is attractive for longer journeys between different parts of the town, and from them to places outside.

These primary roads should be considered for classification as principal roads, eligible for grants from the Ministry of Transport, in accordance with the following extract from the Ministry's circular 9/66—

"11. In considering a road for classification as a principal road, the Minister will take into account first, the function of the road, and secondly, the volume of traffic using it. Some of the factors that will have a bearing on the problem in different types of area are indicated below.

(a) *Urban Areas* In addition to the chief routes giving access and egress to the town, the most important streets which link them and are also used by traffic circulating within and across the town can be

76 Alternative routes considered for the A45

The broken line indicates the lengths covered in the comparative study.





considered for classification as principal roads. Ultimately, it is intended that the network of principal roads should coincide with the primary distributors in the approved development plan. The immediate purpose, however, is to identify the streets which at the present time perform this primary distributory function.

The primary network would be designed mainly on traffic criteria, though environmental factors should be taken into account in the location of individual lengths of road.

The Urban Structure Map does not show the secondary network. This comprises the distributors within local areas, together with the shorter roads leading from them giving access to individual properties. Because the secondary network lies entirely within local areas, environmental considerations should largely determine its traffic loading and design.

19.1.1 Regional roads These are the rerouted A12 and A45 which would carry through traffic, distribute terminating traffic from outside Ipswich to different parts of the town, and also take much cross-town traffic. Because of the need to make the most of existing roads and of the limited funds available for new highway construction, these roads should continue to form part of the town network. But they should be high speed roads built to urban motorway standards to keep through traffic as far as possible off other town roads.

19.1.2 The A45 The proposed new line remains broadly as shown in the first report. Estimates of future traffic have shown the need for at least one major road—whether it be the A45 or a town distributor—running from east to west immediately south of the town centre. Its principal function would be to carry traffic between residential and industrial areas on each side of the Orwell estuary, and in particular to take the heavy flows generated by industrial areas at Newton, Cliff Quay, Stoke, and in the Gipping valley. It would also carry traffic from these parts of Ipswich to Norwich, Cambridge and the Midlands, and would distribute much of the traffic bound for the town centre to its most convenient entry point. If the growing amount of through traffic to and from Felixstowe were added to this road the maximum flow would only be increased by about ten per cent. So if the A45 were routed completely outside Ipswich on the north or the south, this would not remove the need for a major east-west road immediately south of the centre. In view of this, it would be most economical for the new road to become the A45.

The most difficult section of the new road is that through the clearly built-up area around the head of the estuary. Several alternative routes have been considered.

The first report mentioned the possibility of taking the

new A45 across the Wet Dock by a high level bridge. Further study has shown that if the new road is to make its full contribution to the relief of congestion in the town centre, then it must have intersections with an improved Wharfedale Road and an improved Duke Street/Holywells Road. These would give much better accessibility than at present to the port and to the industries around the Wet Dock. The connection with Wharfedale Road would enable it to be used by some of the traffic from Belstead district, so preventing the overloading of Birkfield Drive. The connection with Duke Street would enable traffic from the west to the Civic College and Garsborough areas to use the new A45. Without these intersections, much of the traffic that could otherwise use the new A45 would have to pass through the town centre. This would defeat the main objective of the proposed system of circulation in and around the central area.

The need for these intersections rules out the possibility of a high-level bridge: if the bridge were high enough to give clearance to all the ships at present using the Wet Dock, it would be too high to have connections with surface roads on either side.

A low-level bridge with a central opening to pass shipping into the Wet Dock is not feasible because the time of high water, when the lock gates are opened, would frequently coincide with the peak hour for cross-town traffic.

There remain three possible routes for the new road south of the town centre—

- i immediately north of the Wet Dock;
- ii by a fixed bridge across the middle of the Wet Dock;
- iii by a fixed bridge across the Wet Dock near the lock gates.

Figure 78 shows the three possible locations. All of them would meet the traffic requirements. Studies have been made of their costs, their impact on the existing fabric of the town, and the feasibility of early construction.

There are four objections to locating a road of the required capacity between the central area and the dock (alternative 1)—

- a It would set a definite limit to the expansion of the central area on the south. This is undesirable because the centre at present has a predominantly linear east-west form. The enlarged civic and educational areas proposed in chapter 8 should limit its further extension to west and east respectively; the line of Crown Street, which must be improved as a major road, should be the northern boundary. Expansion is only possible to the south. In view of the role of Ipswich as the major centre of a growing sub-region, the possibility of expanding the centre should be safeguarded. The new A45 would form the southern side of the box of roads around the

town centre proposed in chapter 2. It should not therefore be located north of the river and the Wet Dock, where it would occupy land that may be needed for valuable central uses.

b. Traffic forecasts show that the new road must be at least as wide as the M1. Located north of the dock it would cut a broad bend through three of the important clusters of historic buildings – around St. Peter's Street, Lower Brook Street and Fore Street (figure 45). Not only would important individual buildings be lost, but the whole character of these areas would be altered for the worse.

c. Such a road would be a barrier to local traffic and pedestrians, both of which would have to cross it at a different level. It would defeat the aim stated in the first report of bringing about a closer relationship between the central area and the river.

d. Many existing uses in substantial buildings would have to be relocated and this would make it impossible to build the road in the early years of the expansion when it will be needed.

The last three objections could be overcome by building a section of the new road in tunnel. But this would be very expensive and would still be open to the objection of restricting the future growth of the centre.

The cost of acquiring the land for a road north of the dock would be approximately £2 millions.

The other two alternatives both require a bridge over the Wet Dock with a maximum height of about 30 feet above water level in order to construct the necessary intersections on each side of the river. If the bridge were across the middle of the dock (alternative 2) compensation might have to be paid to users of large ships in the northern part of the dock. The land would cost over £3 millions and there would be considerable disturbance of substantial industries and demolition of newly built houses.

If the bridge were near the lock gates (alternative 3) large ships could no longer use any part of the Wet Dock, the New Cut or the Dock Commission's slipway at Ship Launch Road. Compensation might therefore be greater than for alternative 2, but the land would cost less than £1 million, and fewer substantial uses would have to be relocated. The road would pass through areas of older houses and much of it would be over water or through parkland.

The cost of constructing the road on all three routes would be between £14 and £15 millions.

In the light of this analysis, we recommend that the proposed new A46 should cross the Wet Dock by a flood bridge near the lock gates. This alternative has the least impact on existing uses and the lowest land costs, and the road could be built in the early stages of the expansion. It does entail some restriction on the height of ships using the Wet Dock but this would affect only a small proportion of the total trade of the port. Its effects might be minimised by a greater use of smaller ships and barges, and by the relocation of some of the uses at present around the Wet Dock at the proposed new quay at Millface.

The recommended line for the new A46 shown on the Urban Structure Map would be subject to minor changes when the road is designed in detail after studies of its engineering, its visual impact on the town, its cost, and its effect on existing uses. These studies should be carried out as soon as possible.

13.1.3 The A12 The proposed bridge over the Wes Dock could also carry through traffic on A12, replacing the present unsatisfactory route along Yarmouth Road, Valley Road and Colchester Road. The A12 and A46

would share the improved Belstead Road, and A12 would then follow Bixley Road and Marsh Road to join the proposed Kaysmere by-pass. There is unlikely to be sufficient through traffic on A12 to justify the construction of a northern by-pass of Ipswich. However, to provide for any unforeseen growth of traffic from the coastal area served by A12, a route for a northern by-pass should be reserved. This could be linked to the M12 motorway suggested in our first report. These are both shown by broken lines on the Urban Structure Map.

13.1.4 Town distributors These would be in the form of a nonlinear network extending throughout Belstead and Bramford and eventually linking to a similar network to be developed in existing Ipswich. The main reason for recommending a grid is that only this network gives a choice of routes, resulting in the most even distribution of traffic over the system. This reduces congestion to a minimum. A second reason is that better junctions can be designed if major roads intersect at right angles and at regular intervals. Evenly spaced intersections are desirable because studies suggest that the most economic road network uses traffic light control, with expensive multi-level intersections kept to a minimum.

The dimensions of the grid are determined by several factors. Town distributors would normally carry bus routes, which means that one dimension should be half a mile to keep bus stops within about a quarter of a mile of every home.

The other grid dimension is determined by two factors. First, the light-controlled intersections between town distributors would have a limited capacity. A major factor governing the amount of traffic passing through any one of these intersections would be the size of the adjoining neighbourhood. Secondly, the existing radial roads must form part of the grid where they cross the new districts. These factors taken together suggested a second grid dimension of one mile. Thus the normal area enclosed by the grid is one mile by half a mile.

There would therefore be three town distributors running the length of each district, two of which would pass under or over A12 to link Bramford and Belstead. A1100, relieved of its through traffic on completion of the new A46, would form the most easterly of the three longitudinal roads in Bramford. Its southern end would be re-routed to cross A12 near Sprites Lane and link Bramford with Chantry.

There would be four town distributors across each district. From each district two of these would continue as radial roads into Ipswich. The two serving Belstead would be Birkfield Drive, Widened, and extended in both directions, and Wrenstead Road. At present Wrenstead Road is the A137 to Menkingshoe, but we propose that this clearhatch be transferred to Birkfield Drive, with a connection between this road and the present A137 near Bentley. This arrangement would by-pass Tattingstone White Horse, overcoming the problem of large flows entering the town centre over the congested Stoke Bridge, and enable Belstead district centre to serve the surrounding countryside (figure 80).

Bramford would be linked to Ipswich mainly by Hadleigh Road and Springton Road. Both would need extensive improvements, and new lengths of road would be necessary around the existing Hadleigh Road industrial estate to relieve Bramford Road and the double roundabouts at the London Road, Hadleigh Road, Yarmouth Road junctions. These links do not appear in the network used for the traffic studies described in appendix G, because the need for them was revealed by

80 Roads most readily improved



81 Roads required by 1981

Further studies will be necessary to confirm these and to establish those still undetermined.



the assignment of projected flows to the preliminary network.

The traffic assignments also revealed other shortcomings in the preliminary network, and the roads necessary to correct these shortcomings are included on the Urban Structure Map. Most of the new town distributor roads could be built initially as two-lane single carriageways and later enlarged to four-lane dual carriageways. Some of the roads to the town centre might eventually require to be six-lane dual carriageways; this would depend largely on the length of the peak period, and the proportion of work journeys made by car (figure 81).

Most intersections between district distributors would be at ground level and controlled by linked traffic lights. But it would almost certainly be necessary to introduce multi-level intersections on A137 (Berkfield Drive) and A1071 (Hiddegh Road) near to the proposed district centres.

The grid pattern in the new areas should eventually be extended throughout the existing town. When this is done it will be possible to travel rapidly from any part of

the expanded town to any other part. Today, the road structure in the existing town consists largely of radial roads, there being only two partial ring roads – a northern 'by-pass', which is inside the built-up area, and a section of inner ring road to the west of the town centre. The problems produced by the present road pattern were discussed in chapter 7.

Even with a fairly evenly spaced network in the existing town the greatest flows will be near the town centre which lies on the direct route for much cross-town traffic. The proposed box of high capacity roads surrounding the centre is described in chapter 8. The southern side of the box would be the new A45 urban motorway which would have to carry a very heavy flow of traffic in the peak hour. This flow might eventually exceed the capacity of a bridge built during the first stage of the expansion. The plan would permit a second stage of the bridge to be built over the Wet Dock and linked with suitable feeder roads. Alternatively, the use of private cars for journeys to work might have to be limited by parking restrictions in employment areas combined with special measures to

82 Main bus routes

The solid lines show the main routes serving the new districts. They would call at the railway station R and the bus station. The broken lines show possible adaptations of existing routes to fit the new road network. Additional buses would be garaged near Portman Road, G.



provide cheap and convenient public transport.

18.1.8 Secondary network. This term is used for the roads within the environmental areas defined by the primary network. They form the means of getting from an individual building on to the grid. They occur in residential neighbourhoods, industrial estates and the central area. Access roads serve individual buildings and car parking areas. Neighbourhood distributors could cover the full length or width of a neighbourhood and it is on them that the highest traffic flows within the neighbourhoods can be expected. However, the one mile by half a mile grid enables traffic to be kept within the limit where pedestrian/vehicular segregation is not normally essential. The greatest freedom is therefore given to the designer. However, this freedom is lost and the system breaks down if the access points on opposite sides of a neighbourhood are joined directly by a road. This would give the opportunity for traffic to take short cuts through a neighbourhood which would conflict with its basic environmental requirements. A considerable number of layouts for neighbourhoods can be

produced without such links.

Because the neighbourhood distributors would be indirect, they would not normally be used by buses. The exception to this would be in the central area, where the local distributors would form the one-way network related to the pattern of land uses and destinations within the centre. It is expected that only in the central area and district centres would traffic flows on the local distributors be high enough to warrant pedestrian segregation.

18.2 Bus routes

Figure 18.2 shows the bus routes proposed to serve the new districts. The expansion areas have been shaped so that almost every home would be within a quarter of a mile of a bus stop on one of the town distributor roads, and so that all routes could serve a district centre, the main railway station, and the town centre. Routes could be in the form of loops, with the advantage that buses in both directions could pick up passengers bound for the district and town centres. About 18 miles of additional route would be required to serve approximately 120,000 people in the expansion areas. This compares with 41 route miles (including the Eastern Counties local services in Ipswich) required to serve a similar number in existing Ipswich, where many homes are more than a quarter of a mile from a bus stop. The proposed routes would allow a high frequency of services throughout the day; estimates are given in appendix G.

Buses would normally run on the town distributor roads because the neighbourhoods do not provide direct routes. The possibility of 'bus only' roads was considered but their use is not recommended in residential areas because of their cost and the difficulty of preventing other traffic using them as short cuts. But the feasibility of special laybys and 'bus only' lanes at the side of all purpose roads should be examined when the roads are being designed in detail.

All the industrial areas and secondary schools would be near regular bus routes, but special services might be necessary at peak hours, especially to serve the major industrial estates.

Country bus routes of Eastern Counties could be diverted to pass the new district centres.

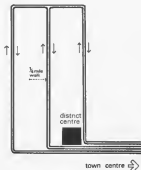
The central area would contain special arrangements for town buses aimed at improving accessibility and at the same time using a road system compatible with pedestrian and other traffic requirements. The proposed one-way circulation would mean that all bus routes would cross the town centre from whichever direction they came, giving passengers a choice of alighting points. For example, buses approaching from the east would have a stop near the Civic Centre as well as one near the Co-operative. Buses from the west would stop near the Civic College as well as near the Civic Centre (figure 18.4).

A suitable site for a long distance and country bus station must be found on the central area loop system, preferably to the south-west of the main shopping area. This would enable coaches to get on to A43 at Gippsey Park without having to cross the centre. It would also serve the expanding office area and the railway station as well as the main shops. Country buses and long distance coaches would not normally complete the circuit around the shopping centres.

The Conestable Road depot could be extended to garage the additional town buses needed to serve the expanded population.

83 Bus routes in the districts

Most homes would be within $\frac{1}{4}$ mile of a bus route, and all routes would pass the district centre on the way to the town centre. In the peak hour there might be a bus every 5 to 8 minutes in each direction on the three routes in each district, and one every 1 to 1 $\frac{1}{2}$ minutes between the district centres and the town centre.



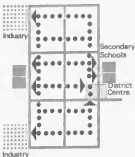
84 Town centre buses

There would be two main loops in the centre giving a choice of bus stops. The additional small loop would enable country buses and long distance coaches to call without entering a main loop. It would also enable short trips to be run by district services in peak periods. Both Balstead and Bramford services would pass the railway station giving a frequent service to the town centre.



88 Walking and cycling

Although industrial areas and secondary schools are on regular bus routes it is likely that many short trips across the districts will be made on foot or by cycle.



18.3 Walking and cycling

Many journeys across the new districts, especially to factories and secondary schools, are likely to be made on foot or by cycle. There should be cycle underpasses, shared with the pedestrian ways, linking neighbourhood distributor roads on each side of the primary grid.

18.4 Rail

18.4.1 Passenger British Rail propose to extend the electrification of the main line from Colchester to Ipswich during the 1970s. This will give a journey time of about an hour from Liverpool Street to Ipswich. The line has capacity for four trains an hour, and this should be adequate even for peak periods; the off-peak frequency would probably be two trains an hour.

Ipswich station has been substantially improved during the last two years. Proposals to build a block of offices adjoining the station and to increase the number of car parking spaces are now being considered by the County Borough Council.

18.4.2 Goods Ipswich goods yard is situated alongside the river Orwell between Prince's Street and Stoke bridges. This has the disadvantage for the town that the railway occupies the only land where the central area could reach down to the river, and the disadvantage for the railway that access is poor both from the main line and for road vehicles.

A site is shown on the draft Basic Plan alongside the main line north-east of Bramford village and adjoining the proposed new A46. British Rail have agreed to study the feasibility of this site for a new freight terminal to replace the goods yard at Commercial Road. About 50 acres would be required, including an area 1,250 feet x 500 feet for handling containers on liner trains.

Because of the likely increase in freight traffic to and from the docks at Felixstowe, provision has been made in the plan for a new rail curve leading westwards from

the East Suffolk line near Bramford Road bridge to the Norwich line near Sproughton sidings.

A road traffic problem is created by rail traffic to the port which must pass over the level crossing at the foot of Stoke Bridge. Rail traffic from the port increased from 34,000 tons to 45,500 tons between 1964 and 1965. Much of this originates at Cliff Quay. There is an urgent need for an alternative rail link in the form of a bridge across the New Cut, linking with the existing line over the Wet Dock lock gates.

18.5 Air

There are daily flights in summer from Ipswich airport at Nacton to Southend, where they connect with planes for Europe and the Channel Islands. These services are used almost equally by people from Norwich and Ipswich and to a much lesser degree by people from the rest of Suffolk and Norfolk.

Though traffic will increase, the opening of a civil airport at Norwich means that Ipswich airport, with only minor improvements, should be able to handle the likely volume of passenger traffic from the sub-region for many years.

Should this forecast prove wrong, the only suitable alternative site is at Martlesham. The old service airfield could provide better runways, but the extra capital and running costs could not be justified on current estimates of future traffic.

The activities of the East Anglian Flying Club and other private aircraft movements are increasing, but they are unlikely to need major changes of the airport.

18.6 Sea

Trade through Ipswich is increasing and the Dock Commission have plans for a new quay of some 3,300 feet at Halifax on the west bank of the Orwell opposite Cliff Quay. Proposals for the first stage of 1,100 feet have been submitted to the National Ports Council.

The new quay is shown on the Urban Structure Map and the land between it and a realigned Wharfedale Road has been reserved for industry.

The port would be affected by the plan in two ways. The building of the A46 urban motorway, with its connectors Wharfedale Road and Duke Street/Holywell Road, would give much better road access to all parts of the port, including the proposed new quay. This would reduce delays and make Ipswich more attractive to shippers, especially if combined with improvements to A46 between Ipswich and the Midlands. Better access would be particularly helpful to the development of container and roll-on/roll-off traffic.

Part of the cost of obtaining improved access to the port is some restriction on the use of the Wet Dock entailed by the proposed bridge. Ships with structures more than about 30 feet high would no longer be able to use the Wet Dock. Only about a sixth of the total tonnage passing through the port is handled in the Wet Dock, and the proportion could be expected to fall rapidly after the opening of the new quay. The building of the new quay would enable some of the users around the dock to be relocated on more suitable sites. Others might continue their present operations by using barges, specially modified ships, or pipelines to loading and discharge points below the bridge.

The precise effects of the bridge, and the costs of compensation and relocation, must be studied before the bridge and its approaches are designed in detail.

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To accommodate 70,000 newcomers and their natural increase by 1981, Ipswich must build at twice the average rate of the earlier new towns. It was not part of our terms of reference to consider the feasibility of such a rapid expansion, and we have assumed that adequate finance, constructional resources and employment will be available.

Little is known about the social effects of different rates of expansion. But it seems clear that the successful settlement of newcomers depends largely upon the balanced provision of homes, jobs and social facilities. There are potential advantages both in more rapid growth and in the expansion of an established town. The advantage of rapid growth is that the faster the build-up, the shorter the time that the first newcomers have to wait for services requiring a large population to support them, e.g. new district shopping centres. The advantage of expanding an established town is that it already has some of the higher level services that a new town may lack for many years. But these advantages can be obtained only with a logical and realistic programme of growth.

Figures 65 to 69 show four proposed stages for the construction of the expansion area; each stage provides for a population increase of 20,000. No dates have been put to these stages because it is not yet known when planned expansion will begin or how the rate of growth will vary. If 70,000 newcomers and their natural increase are to be accommodated by 1981 then that year will see the completion of the fourth stage of the programme. But if expansion is spread over a longer period it should still follow the same sequence.

20.1 Objectives

The sequence of construction is designed to achieve the following objectives—

- i To locate each successive residential area next to one already developed; this means that neighbourhoods in course of development are not isolated from the rest of the town; that their residents can use services in adjoining neighbourhoods while their own are being completed; and that bus routes can be economically extended as the town grows. It is also likely to entail the minimum severance of farm units and the least interference with agriculture in advance of construction.
- ii To provide district centres at the earliest possible date in the development of each district, for the convenience of the newcomers and the relief of congestion in the town centre.
- iii To leave room in each district for natural increase after the period of rapid expansion.
- iv To obtain the most economical provision of new roads and engineering services, with the maximum use

of existing roads and services in the early stages of expansion.

20.2 Application

In furtherance of these objectives planned expansion should start with the Chantry extension adjoining the existing town. It should then proceed to the nearest parts of either Bramford or Belstead district – but not to both because population growth must be concentrated in one district at a time if each is to get a district centre at the earliest possible date in its development. Building Belstead first would have the advantage of economies in sewerage and electricity supply, since whenever development is located, it must be connected to the sewerage works at Bobbitshole and the adjacent transformer point. But Bramford is served by existing roads with spare capacity – A1100 and Hadleigh Road – and traffic to the town centre would enter on the west where there is less congestion than on the south. The development of Belstead would require improvements to A137, especially at Bourne Bridge and Stoke Bridge, and the extension of Blidfield Drive southwards from Chantry to the new district and northwards into the town centre. In view of the importance of constructional traffic and the greater use of the town centre in the early phases of expansion, we recommend that Bramford should be built before Belstead. Pedestrian subways or bridges across A12 would be required to link the Chantry extension with the first part of Bramford district. They should be incorporated in the forthcoming improvements to the trunk road.

Construction would be concentrated in Bramford until the end of the second stage; there would then be sufficient population to support the district centre, though its first phase should come into operation when the population is about 20,000.

With 40,000 people in Bramford, the emphasis would shift to Belstead; construction would start at the end nearest Bramford so that the first newcomers in Belstead could use Bramford district centre until their own was operational. Development in the third stage would proceed along the northern half of Belstead district so as to make the maximum use of the first trunk sewer and the first new road between A12 and A137; the first phase of the district centre would be ready by the end of this stage.

In the last stage development would be concentrated in the southern half of Belstead and the district centre would be completed.

At each stage industrial areas would be opened up with roads and engineering services in advance of housing construction. The maps show the maximum area of industrial land likely to be needed at each stage. Not all

of this will be taken up by factory buildings, but a sufficient quantity of industrial land must be available at any time to accommodate firms of different sizes, with different densities, and with different expansion requirements.

Parks and playing fields should be opened up close to each residential area as it is completed. Planting should so far as possible precede construction so that the screening of roads and industrial areas is effective at an early stage.

For each stage of expansion the maps show the more important road improvements and new roads required in the existing town to handle the increasing volume of traffic. Some of these would have been necessary even without town expansion because of the increase in car ownership and use.

The eastern section of the A45 urban motorway, including the bridge over the Wet Dock, and its main connections with existing roads, should be completed during the first stage of expansion. If this is to be achieved an early start must be made on the detailed design of the road, the acquisition of land, and the relocation or adaptation of existing uses affected by the road and the bridge. The first stage would also include the new link from A45 along the line of Heath Road to the proposed Kesgrave by-pass, providing a better route for A12 through traffic.

In the second stage a new road would be built from Bramford Road through Whilton to Norwich Road, which would be improved into the town centre.

The third stage would include the north-western section of the urban motorway, completing the new route for through traffic on A45; the extension of Birkfield Drive through Belstead district to join A137 south of Tettingstone; and the linking of A138 with the primary network in Belstead district.

In the last stage road improvements would be mainly on the eastern approaches to the town centre.

Road improvements in the central area itself should continue throughout the expansion, but their precise programming requires further study.

**86 Programming and
of Stage 1**

Each stage would add
20,000 people to the
expansion areas



87 End of Stage 2





The financial study of the draft Basic Plan has been made in two stages—

I An estimate of the cost of construction and land acquisition that would be incurred by public and private developers in implementing the expansion up to 1981 according to the plan described in this report. This provides a measure of the call on national investment resources, and a basis for comparison with other town expansions and new towns, when they have been costed in similar detail.

II An appraisal of annual expenditure and income in respect of construction and land acquisition up to 1981. This provides a basis for negotiations between central and local government about their respective shares of costs and returns, and a financial framework for the broad programming of expansion.

A particular difficulty in costing the expansion of an established town is that some proposals included in the basic plan, e.g. road improvements in and around the central area, would have been necessary even without planned expansion, though their scale and timing might have been different. Other proposals, e.g. a new sewage works, may become viable only because of the growth of the town, but will serve the established population as well as the newcomers. We have attempted to distinguish between those costs wholly attributable to the construction of the proposed expansion areas, and those attributable to both the expansion areas and the existing town. Appendix H lists the major items of cost included in the two categories. It also lists those items—namely all works in the central area—that have not been costed because proposals are not yet sufficiently detailed.

The details of the cost estimates and the financial appraisal are set out in appendix H. The main conclusions are given in this chapter.

Separate costs have been estimated for each of the forty different types of constructional work listed in the appendix. Expenditure and income have been calculated for each of the first five years of planned expansion, and for two subsequent periods of five years each. The phasing of construction was based on the programme of development outlined in chapter 20, but costs have not been calculated for each of the four stages shown on the programme maps because these could not be precisely dated.

21.1 Cost of construction

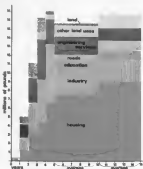
The cost directly attributable to the expansion areas is estimated to be £191.88 millions. This is within the range of £160 to £200 millions stated in the first report. The additional cost attributable to both the newcomers and the established population is estimated to be £80.17 millions.

For the purpose of comparison with other major developments with different population targets it is necessary to express these global figures as costs per person. The main components of the £191.88 millions directly attributable to the expansion areas have been divided by 80,000—the number of people expected to be living in the expansion areas by 1981. The results are given in table 21.

21 Construction costs per person

	£	Per cent
Residential	1,128	68.8
Industry	288	11.9
Education	182	4.3
Social services	88	4.1
Canals	88	4.1
Roads	126	8.5
Engineering services	323	13.6
Professional fees	237	8.8
Total	2,386	100.0

Professional fees include the salaries of professional and technical staff and that proportion of overheads attributable to design and supervision of building works.



Though the estimated cost has been divided by 80,000, some of the development it represents – e.g. roads, trunk sewers, district centres – will serve the ultimate population of 126,000 for which the expansion areas have been planned to accommodate natural increase after 1981. The final cost per person will therefore be significantly smaller than the figures in the table.

21.2 Cost of land

The cost of acquiring the whole of the land in the proposed expansion areas is estimated to be £5.65 million at 1968 prices.

21.3 Financial appraisal

In order to simplify the calculations we have assumed that all building work, except houses for owner-occupation, will be financed by the public authorities, and that revenue will therefore be in the form of rack rents, cost rents, subsidies and grants. In practice, some construction, e.g. of the larger factories and offices, of churches and public houses, will be financed by private developers and returns to the public authorities will be in the form of ground rents.

At 1968 values, accumulated income (including subsidies and grants) from the development of the expansion areas up to 1981 is estimated to be £12.180 millions, and accumulated loan charges £14.185 millions. This comparison takes no account of increases in values resulting from the growth of population and economic activity. On the assumption that property values in Ipswich increase during the expansion period at the same rate as they have done in the whole country over a similar past period, but making no allowance for rent increases after buildings are let for the first time, then accumulated income up to 1981 might be £21.5 millions, and accumulated loan charges might be £20.5 millions. The national increase in property values has been due partly to inflation and partly to increases in population and real income. Though inflation may not continue at the same rate, the total increase in values in an expanding town is likely to be greater than the national average.

21.4 The broader picture

Two further studies would be necessary to make a complete economic evaluation of a major expansion such as that proposed for Ipswich.

The first is an estimate of the operating costs and revenues of public services in the expansion areas and in the whole of the expanded town, together with an

estimate of the increase in taxable value resulting from the expansion. The work we have done on costs for this report would provide a suitable starting point for such a study.

The second study would be more ambitious. The financial appraisal made for Ipswich, like those for other proposed new towns and town expansions, covers only investment in construction. But this is accompanied by investment in productive equipment, especially by the industrial enterprises moving to the town. It would be useful to assess the return on this investment and to compare it with similar investment in alternative locations such as the congested areas from which factories and offices move to new and expanding towns. A large part of the investment in an expanded town – for housing and most of its associated services – would have to be incurred in any event to provide for the growing population. Indications from the new towns are that when this investment is part of a balanced programme of urban growth it results in marked increases in industrial productivity, and hence is a greater addition to the national product than if the investment took place elsewhere – as well as in a greater sure of homes satisfaction. In the expansion of an established town, additional costs may be incurred because urban renewal may be carried out earlier than it would have been without expansion, but the economic and social benefits of planned growth are spread over a greater population. When the expansion is located – as that of Ipswich is – at the centre of a sub-region capable of continuing economic growth, then the public investment in infrastructure will make possible increasing returns to industrial production over a long period. An attempt to quantify these returns would be of considerable value in formulating future policy for new towns and town expansions in their regional and sub-regional setting.

30 Breakdown of capital costs

Year by year costs are shown for the first five years. The bars for years 6 to 10 and 11 to 15 indicate annual averages for those periods. The figures relate only to development in the expansion areas.

22 Management

Design and management are two aspects of a single process—that of creating through physical development a prosperous and happy community. Good design can make subsequent management easier; good management can help to realise the objectives of design.

Examples of design serving management are—

i The layout of the new districts so that a few bus routes can give a convenient service to the whole population.

ii The reservation of industrial areas large enough to permit the continuous letting of plots of different shapes and sizes, and the distribution of these areas so that traffic is evenly spread throughout the main road system.

The needs of management have been seriously in mind in the preparation of this draft Basic Plan, and they must be even more carefully considered when detailed plans are made for the expansion areas and the town centre.

Examples of management serving design are—

a The preservation of existing woodlands and the creation of new ones for the enhancement of the town, and arrangements for the public to enjoy them without destroying them.

b The need to encourage older people, especially relatives of newcomers, to move from London to Ipswich from the beginning of expansion, this would secure a more balanced age composition, and make it possible to include a reasonable proportion of small dwellings in the housing programme from the start. The experience of the earlier new towns and the survey of L.S.S. applicants has shown that the demand exists; it is up to the Development Corporation and the County Borough Council to ensure that suitable arrangements are made for meeting it.

In these and other ways the implementation of the basic plan will depend upon the adoption of management policies appropriate to the objectives set.

The Basic Plan is intended as a flexible document that can and must be frequently reviewed as the expansion proceeds. The needs for many sorts of economic and social provision cannot be accurately estimated in advance. For this reason it is essential to set up from the start a comprehensive system of recording information about incoming people and industry and the changing pattern of economic and social activities. These records should be frequently analysed and the results used when modifying the Basic Plan and drawing up detailed plans.

The people of the expanding town should have opportunities to comment on the plans and the methods proposed to implement them.

The Development Corporations and voluntary organisations in the earlier new towns have a wealth of experience of the problems of creating a planned new community. This experience has never been fully analysed and summarised. Studies of the earlier new towns

could be of immense value to the Ipswich Development Corporation and the County Borough Council in their bigger and more complex task of carrying through the rapid major expansion of an existing large town.

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Appendix A

Consultants' terms of reference from the Minister of Housing and Local Government

Part I

It is proposed to add 70,000 people from London to Ipswich by 1981. You are to advise how this can best be done. The Ministry hope that it will prove feasible to accommodate the whole of this population in an expanded Ipswich, but if you consider that a somewhat lower figure would produce a clearly better planning result, you are to advise us where else in the Ipswich area (as defined on the attached map) the extra provision should be made. In the light of your conclusions you are to advise on the area of land to be designated under section 1 of the New Towns Act 1946, for the expansion of Ipswich up to 1981. You are also to indicate how development might proceed after 1981, either by further expansion and renewal of Ipswich, or at other points in the sub-region.

The work will involve:

- a. An examination of the existing structure, resources, population, employment, communications, service importance, and of the renewal, economic and physical possibilities of Ipswich in order to establish its role in relation to a substantial expansion of population.

- b. A similar examination of the area defined in the attached map in order to identify alternative locations and forms of possible development.

- c. An assessment of the potential for village and small town expansion, the future use and appearance of the coastline and estuaries, special recreational areas, regional parks, etc. (In particular, the impact of the proposed population increase will be studied in relation to areas of high amenity value and to the steps necessary to preserve them and to enhance their value for recreation.)

These studies will form the basis for the recommendations for designation and of the subsequent work on the basic plan for Greater Ipswich. They will also enable conclusions to be drawn on the proposed rate of population increase and on a 'rolling Programme' for the development of highway and other engineering services.

Throughout, account will be taken of the overall strategy of the Government in relation to the South East of England.

Part II

You are to prepare a draft basic plan for the expanded town which will be related to stated social and economic objectives. The plan will be programmed, costed, and the revenues estimated.

During the formulation of the basic plan, detailed consideration (including, where necessary, the preparation of 3-dimensional drawings) will be given to the existing central area, together with any extension of the area which may be proposed.

There will also be a need to give detailed consideration to certain critical areas of urban renewal and new development outside the central area.

In advance of the completion of the basic plan, a selection of suitable pilot residential development projects will need to be made and design work on them started, but this work will not form part of the present commission.

Social Study

Throughout the project you will be concerned about the social implications of your proposals and will, with the help of the Institute of Community Studies, gather relevant sociological information to help guide both the recommendations on designation and the more detailed proposals of the basic plan.

Survey work will cover the present use — in Ipswich itself and in other selected parts of the 'area of search' — of public and private transport, retail shops, recreational facilities; the 'community structure' of the Ipswich area; the likely reactions of local people to alternative sets of proposals for expansion; and some enquiry, in London, among potential migrants and among those making influencing the decisions on moving to Ipswich — e.g. exporting authorities, employers, the Location of Offices Bureau, etc.

It is understood that the Institute of Community Studies reserves the right to publish a report at the end of the contract, evaluating the techniques of 'social planning' that have been developed and used.

Clients

Your client for Part I of the Study will be the Minister, and for Part II the Ipswich County Borough Council and the Minister jointly.

It is, however, the Minister's intention (to which you have agreed) to transfer his interest in Part II to a Development Corporation established under the New Towns Act 1946, if and when such a Corporation is appointed.

Duration of Study and Submission of Reports

You will commence work on the Study on 14th June, 1965.

Your final report on Part I will be submitted to the Minister not later than 14th June, 1966. You expect, however, to be able to communicate the substance of your policy recommendations to the Department by 14th April, 1966.

Your report on Part II will be submitted to the Ipswich County Borough Council and the Minister (or Development Corporation) not later than 14th June, 1967.

Appendix B Population and household projections

I Population projections

Method

The population projections have been made with a specially designed computer programme.

Projection of the established population of the proposed designated area had to be from 1961, since this was the latest year for which detailed Census figures were available, giving the full breakdown by age, sex and marital status. The projected figures therefore relate to April of each year.

The basic rates of mortality, marriage and fertility were supplied by the Government Actuary's Department and are those used in national projections. The latest rates available when the projections were carried out were those for the national projections from mid-1964.

The rates used imply—

- i Mortality: continuing to fall to 40% of present values by the end of the century at ages under 40, with a progressively smaller rate of decline at higher ages.
- ii Marriage: A continuation of recent trends to a younger average age at marriage and higher proportions married at all ages.
- iii Fertility: rates continuing to rise, though not as fast as in the period 1955–1964.

A feature of the calculation is a check that the numbers of men and women marrying in any one year agree. This becomes important when dealing with an intake population in which the numbers of men and women of the ages when most marriages occur may differ considerably, because of rapid variations in the age distribution. There are corresponding checks for other changes in marital status.

It should be noted that figures for secondary school children are for the five-year age group between the eleventh and sixteenth birthdays.

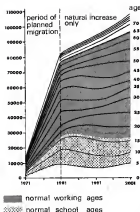
Figures are available at five-year intervals 1961–2001 for the established population, and 1971–2001 for the newcomers.

Projection of the established population

For the first report the populations of the County Borough and all the other local authority areas or parts thereof in the Ipswich sub-region were projected separately to the end of the century. Allowances were made for different levels of fertility and mortality in Ipswich C.B., the urban districts (Peakeston, Stowmarket, Woodbridge and Hadleigh), and the rural districts (Dedham, Gipping and Safford).

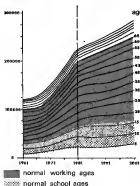
Net inward migration was included until 1966. This was estimated from the Registrar General's mid-year estimates until 1966, and thereafter was based on a

91 Projected age composition of newcomers



92 Projected age composition of combined population

Before the end of the century the population will exceed the planned capacity of expanded Ipswich. The first report recommended that other towns in the sub-region should be expanded to take some of the natural increase.



continuation of the current rate of house completions.

When the proposed designated area had been determined, its population from 1961 onwards was obtained by adding to the population of Ipswich C 8, the appropriate proportions of the populations of Searford R.D. and of that part of Gipping R.D. in the sub-region. These proportions increased slightly from 1961 to 1965, since new building in Searford and Gipping is concentrated in parishes adjoining Ipswich. From 1965 the proportions were held constant, since all further new building is assumed to be part of the planned expansion, except that for the natural increase of the established population which is assumed to be spread through the rural districts in proportion to the present population.

Projection of the newcomers

The type of people likely to move to Ipswich is discussed in appendix C to the first report. Their probable age composition is shown in figure 3 of this report (chapter 3).

The calculations all assume that planned growth starts in 1968-9. The effect of a possible later start is discussed below.

A rapid build-up in the construction rate was assumed with a constant rate of intake thereafter. This entails a slowly rising rate of house completions during the intake period, to accommodate the natural increase of the established population and the few second generation households that will be formed among newcomers before 1981. The intake figures used in the calculations were 4,000 persons in 1968-9 and 5,500 persons a year 1969-1981.

Results

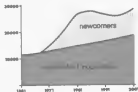
Figure 5 (chapter 3) shows the growth in the various sections of the population. It is only after the end of the intake period that the natural increase of the newcomers becomes an important factor.

Figures 91 and 92 show the age composition of the newcomers, and of the established population and newcomers combined, as projected to the end of the century.

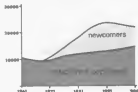
Here and in the rest of this appendix the term 'the established population' includes net inward migration to 1968.

The post-war births 'bulge' can be clearly seen in the established population, in the 10-14 age group in 1961. Since intake is spread over less than a generation (see first report, page 76), the newcomers still show significant imbalance in 1981, with a deficiency of teenagers and an excess of children and young adults. The in-

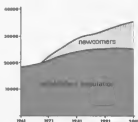
93 Estimated numbers of primary school children



94 Estimated numbers of secondary school children



95 Estimated numbers of retired people



balance is relatively less in 1981, after 13 years of immigration, than in 1971, after only 3 years.

This relative shortage of teenagers among the newcomers in 1981 means that in the years immediately after the end of planned intake, when these people form the main child-bearing groups, there will be a noticeable falling off in the number of births. This is demonstrated in figure 93 which shows that the number of children of primary school age falls considerably between 1980 and 1990. The same pattern is repeated five years later for secondary school children (figure 94).

Figure 95 shows that towards the end of the century the number of people of pensionable age will increase much faster among the newcomers than in the established population.

The advantage of expanding an existing town

In 1981 the planned expansion of Ipswich will have been going on for about the same time as the building of Stevenage new town in 1961. Figure 6 (chapter 3) therefore compares the projected age-composition of the

total population of expanded Ipswich in 1981 with the age composition of the Stevenage population in 1961.

The Stevenage population is far less balanced, both in the relative scarcity of old people and in the depth of the teenage trough. The projected imbalance in Ipswich is as great as it is only because the peak of newcomers aged 30–34 in 1981 coincides with the post-war 'bulge' in the established population.

The question of population balance

The most balanced population is a 'stable' one, with constant rates of mortality and fertility, and an unchanging age composition. The same number of babies are born every year and demand for services such as education, health and housing remains constant.

This situation is unlikely ever to be achieved in practice and for most planning purposes a satisfactorily balanced population is one in which the demand for various services rises gradually with time. Fluctuations in the sizes of successive age-groups produce fluctuations in the demand for services, then either the peak demand will not be adequately met, or else the provision for it will subsequently be underutilised and hence a less economical social investment.

Population imbalance is clearly relative, and in this respect Ipswich has an advantage over the earlier new towns. However, within the expansion area the situation will be more like that of a conventional new town. If people from existing Ipswich go to live in Eaststead and Stanford this may help to spread the age distribution, but the people most likely to do this are the most mobile elements in the population—young couples with or without children—in fact people very similar to the newcomers.

A problem of population imbalance will therefore exist in the new districts, and in a more acute form in smaller areas. A neighbourhood built and populated in, say, 2½ years, will have an age structure that may be roughly represented by the first diagram in figure 96 at the younger ages. Ten and 20 years later this population, at the younger ages, may be like the second and third diagrams in figure 93. These demonstrate how the demand for services will fluctuate. Demand for primary school places, for example, might fall to 60 per cent of its first peak value. Population movements after the initial intake will of course tend to iron out such fluctuations.

The effect of a less balanced intake population

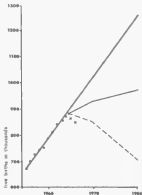
The population projections have been based on the assumption that the age structure of the newcomers will approximate to the 'components' pattern shown in figure 3 (chapter 3). This was derived by assuming that two thirds would have the age structure of the intake to Crawley in 1964, typical of recent migrants to the well established London new towns, and one third the rather more balanced population that can be expected to move to houses for sale.

If attempts to attract such a better balanced intake population prove unsuccessful, the newcomers to Ipswich might resemble some of the less balanced migrant populations such as the intake to Swindon in 1963–4. This is compared with that assumed for Ipswich in figure 3.

Outline projections have been made to compare the population resulting from a 'Swindon' type intake with that it is hoped to achieve at Ipswich. The 'Swindon' in-

66 Alternative fertility assumptions

The black dots show annual births in England and Wales from 1955 to 1964, and the solid brown line shows a continuation of the trend. This is the upper limit in tables B1 and B2. The solid black line shows the number of births corresponding to our projections, and the broken brown line a lower limit as far below the black line as the upper limit is above it. The black crosses show the most recent annual births.



take would produce a stagnant population about 6½ per cent greater in 1981, and nearly 20 per cent greater in 2001. The total population of Ipswich would be 2½ per cent greater in 1981 and 6½ per cent greater in 2001. The 1981 increase results from the almost complete absence of old people in the intake population, and hence the presence of more people of child-bearing age, and the 2001 increase from a consequent growth in the number of childbearing second generation families.

The magnitude of the resulting planning problem can be seen from the fact that with the 'Swindon' intake the number of people of pensionable age would be nearly eight times bigger in 2001 than in 1981, but would only double with the Ipswich pattern. The fluctuating demand for all services would be accentuated.

Variations in fertility assumptions

The most recent national fertility rates which were available when the projections were first made were those used for projections from mid-1964. This year came at the end of a ten-year period of rising fertility rates (see figure 56). The assumption incorporated in the national projection was that fertility rates would continue to rise, though more slowly than 1955-1964.

Predictions of fertility which have, in the event, proved incorrect, have been the chief cause of the almost notorious failures of some past population forecasts. It is therefore advisable to consider the effect on our projections of possible variations in the fertility assumptions.

Following the approach of Boreham (New Society, 3rd March, 1966), an upper limit might be put to the future trend in fertility rates by assuming they are unlikely to rise faster in the next 15 years than they did in the ten years 1955 to 1964. This upper limit is shown in figure 56 in terms of total births in England and Wales, with a corresponding lower limit, equidistant from the central assumption made by the Registrar General.

Tables B1 and B2 assess the effect of such possible variations in fertility on the two components of the projected population of Ipswich. The element of un-

certainty only arises after 1966, since the population to that date is reasonably well defined. Only figures above the heavy line are affected - since these are the ones which refer to persons born after 1966. The newcomers are affected less than the existing population because the 0-4 age group at dates until 1981 always includes babies born before their parents moved to Ipswich, and the assumed intake pattern is independent of fertility rates.

The variability of the total population becomes greater with time, and beyond 1986 it has two ceases, since there is a range of values for the number of potential mothers, as well as for the number of children they will have.

The total number of births in England and Wales since the 1964 national projections (also on figure 56) shows that the rising trend in births has stopped, at least temporarily. This might suggest that the lower limit shown on the diagram, and in tables B1 and B2, is the appropriate assumption for Ipswich. But the evidence is not conclusive, and an alternative temporary assumption might be that total births in England and Wales will remain at a constant level of about 850,000 a year. The population totals for expanded Ipswich on the three fertility assumptions outlined above are shown in table B3, for dates until 1981.

The effect of a later start

If the start of building is delayed one year, but the target of an intake of 70,000 people by 1981 is kept to, this means compressing the intake into twelve years instead

Effect of possible variations in fertility assumptions (figures in thousands)

B1 Established population

Age	1971	1978	1981
0-4	11.6 ± 0.7	12.7 ± 1.6	13.2 ± 3.7
5-9	11.2	11.6 ± 0.7	12.7 ± 1.6
10-14	10.1	11.2	11.6 ± 0.7
15-19	8.4	10.1	11.2
All ages	120.9 ± 0.7	136.6 ± 2.6	144.2 ± 8.2

B2 Newcomers

Age	1971	1978	1981
0-4	2.67 ± 0.8	3.0 ± 0.7	10.2 ± 2.3
5-9	1.28	3.4 ± 0.05	9.6 ± 0.7
10-14	0.81	3.1	7.2 ± 0.05
15-19	0.73	2.2	4.9
All ages	10.6 ± 0.05	47.0 ± 0.75	80.7 ± 3.05

B3 Total population

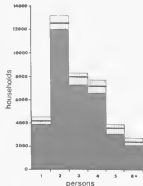
Assumption	1971	1978	1981
1. Projections	148.4	186.8	225.0
2. Lower limit	147.6	182.2	218.7
3. Constant births	147.6	182.7	219.3

of them. Since the build-up may also be slower, a possible intake pattern would be 2,000 in 1969-70, 4,000 in 1970-1 and 6,400 in each of the ten years 1971-1981.

An adjustment on this scale would not substantially alter the age structure of the newcomers except slightly in 1971. Hence it is possible to deduce the resultant population totals by simply scaling the figures for natural increase in each period, taking account of the length of time for which each section of the population is present.

The results of the adjustment are shown below. Without redoing the detailed projections the figure for any section of the newcomers can be obtained fairly accurately by scaling the calculated value by the factor given in the table below.

	Total immigrant population Originally calculated	Adjusted	Scale factor
1971	16,510	6,076	·381
1976	46,966	46,906	·973
1981	80,728	78,716	·975



The effect of emigration

The experience of the new towns suggests that some four per cent of the households that move to Ipswich may leave again each year. The projections assume that such emigrants will be replaced by other households with a similar composition, so that the net intake by 1981 will be 70,000. In later years older families leaving Ipswich may be replaced by younger ones, and this will help to redress the population imbalance.

Records of population movement should be kept so that revised projections can be made including an allowance for the turnover of population. This may well be lower in an expanding large town than in an entirely new town.

Check on the method

It is not yet possible to check the population projections for the proposed designated area, since it has no administrative existence. Checks must therefore be made on the projection for Ipswich C.B.

The estimates of net inward migration included in the projection until 1966 were made on the basis of the Registrar General's mid-year estimates to 1965, with allowance for the natural increase which actually occurred. The official mid-year estimate for 1966 was 121,280 and our figure was 121,480. This broad agreement confirms that the projection programme calculates natural increase correctly.

The 1966 Census figure for Ipswich C.B. is a ten per cent sample figure of 118,780. Taking account of sampling error, the 95 per cent probability range of the total population is $(118,780 \pm 2 \times 104) \times 10$, i.e. 116,700 to 120,860. Further, the Census office considers that the overall figures suggest that, in addition to normal sampling error, the population was undercounted by between one and two per cent. Taking a figure of 1.5 per cent, we obtain for Ipswich a population range of 118,360 to 122,770. Our calculated value of 121,480 lies well within this range.

II Household projections

Method

A computer programme has been developed to divide a given population into a probable distribution of households of various sizes and types using material from the 1961 Census Household Composition Tables.

After allowance has been made for those living in certain long-stay institutions, the population is first analysed into families and households according to the 1961 pattern. A scaling process ensures that the correct number of children are included. Thirty-two household types are distinguished.

One assumption of these calculations is that no two families will form a single household (a family being defined, as in the Census, as a married couple with or without children or a lone parent with one or more children).

Testing the validity of the calculation

This was the first time the computer programme had been used so some check was necessary. The 1961 Ipswich C.B. population was therefore analysed. The calculated household size distribution was compared with that shown in the Census Household Composition Tables. This part of the Census was based on a 10 per cent sample, so a 95 per cent probability range for the number of households of each size was considered to allow for sampling error. Shared households were replaced by their components.

The calculated total number of households agrees satisfactorily with the value deduced from the sample. For the size distribution, agreement is adequate for one and two person households, but the sample shows more three person households and slightly fewer of four and more persons than the calculation. This discrepancy can be explained by considering the number of dependent children in the sample: 2,844. The full population figure

97 The reliability of the household projection

The household projection was tested by applying the method to the present population of Ipswich and checking the result against the known household structure. The line representing the projected value in each case fell within the shaded area representing the probable range of values from the 1991 census sample.

show that ten per cent of the children in the 1991 population is at least 3,020 – even if no children stayed at school after 15 (see table B4 for a definition of children in this context). The difference is clearly outside the range of sampling error (2,744–2,944 at the 95 per cent probability level) and suggests a biased sample. Too few children in the sample would produce proportionately more families with only one child and fewer with two or more children than in the population as a whole. This pattern of too many households of three persons and too few of four and more persons is exactly that of the sample as compared with the calculated distribution.

If reasonable allowance is made for this bias, we obtain the household size distribution of figure 97, where the calculated values all fall well within the probable range of the adjusted sample values. This demonstrates that the calculation is valid and that national household composition distributions are appropriate for Ipswich.

Projecting to the future

The populations derived from the projection were then analysed, to give household distributions for the future.

An assumption has to be made on the future level of single person household formation among the non-married population. This level has been rising recently but future trends are necessarily uncertain (see Cullingworth, 'English Housing Trends', Backmann et al. *The British Economy in 1975*). The exact form of calculation used in our programme differs from theirs and so do the age ranges, so figures are not directly comparable.

For the established population of the proposed designated area the assumption made is that the rate of single person household formation by those able to do so (i.e. excluding persons heading families as lone parents) will rise by 10 per cent per decade at ages over 45, and by 20 per cent per decade under 45 – where it is at present very low. For the newcomers the rates have been set relatively high in the earlier years, on the assumption that an adequate number of small dwellings will be built from the start, despite the small numbers of non-married adults among the newcomers. These rates are similar to those for the established population at the end of the century. Table B4 sets out the headship rates implied by the calculations.

It is of course obvious that there will only be the projected number of single person households if suitable accommodation is available. Hence this calculation assumes that, as a matter of policy, small dwellings will in future be easier to obtain than at present.

The results of the calculations are shown in tables B5, B6 and B7, and figures 59 and 60. The tables are mainly arranged copies of the printout from the computer, and as such may give a false impression of accuracy. We do not claim that we can predict the numbers of households of each type to the last two digits.

Comments on the results

1 Established population

The number of one-person households rises, but their proportion of all households remains more or less constant, since the groups from which these households are drawn become smaller with rising marriage rates.

For the rest there is a trend to larger households as time goes on. Rising fertility rates have been assumed in the population projections and this produces a fall in the proportion of two-person households, mainly married couples without children.

The changes in average household size (see figure 67) can be explained by the 'bulge' of post-war births which is rather more marked in Ipswich than in the whole of England and Wales. Between 1971 and 1981 these people will have most of their children. The population figures show a corresponding sharp rise in natural increase between 1971 and 1976. Hence there will be a secondary bulge, much more flattened than the first, which will give a higher average household size in 1991, and the effects of which gradually wear off in 1991 and 2001.

The effect of the 'bulge' can also be seen in table B5. In 1971 unmarried members of the bulge inflect type 1 (young and middle aged people living alone) above the general rising trend. Also in 1971 type 3 (young married couples) is inflated by large numbers of recently married members of the bulge who have not yet had any children. This type falls sharply by 1981 when most of the bulge parents have children and the new generation of recently married couples is smaller.

The main feature of the table of households by type is a generally rising trend for all types. The details can be related to the population structure in 1981. This shows that, allowing for the effect of mortality, the number of middle aged people will fall 1971–1981–1991 and then rise sharply by 2001, when the post-war 'bulge' has reached middle age. This explains the changes in the number of households of type 4 (middle aged couples living alone).

2 Newcomers

The pattern of household sizes and types can be related to the composition of the newcomers and the timing of intake between 1959 and 1961. Figure 59 shows the sharp increase in the number of households of all sizes during the expansion.

On arrival most of the adult immigrants are young and the women may have about ten years of child-bearing ahead of them. In 1971, soon after the start of expansion, few families are complete, in fact many may not yet have any children. The high proportion of two-person households confirms this. The average household size is therefore relatively low (see figure 60). By 1991 the families of earlier migrants are complete and average household size has risen. By 1991 virtually all the first generation migrant families are complete and few of the children of the earlier newcomers will yet have left their parents' homes to form new households. Hence average household size reaches a peak. In 2001 many second generation migrant households will have formed, but few of these will have many children. There is therefore a sharp rise in the number of two-person households and a drop in the proportion of large households, so that average household size drops steeply.

Following this broad pattern, table B6 shows that between 1961 and 1991 several household types with children drop in number but types with 'another adult' rise sharply, as many families now contain grown-up children. These 'other adult' types decline by 2021 when most of the grown-up children have married and left home. The fluctuations in the number of households of type 3 (young married couples with no children) can also be explained in this way.

3 The whole town

Figure 69 shows probable changes in average household size for the whole of expanded Ipswich. Since the established population is more numerous than the newcomers, it has a proportionately greater effect on the overall pattern.

B6 Household rates for non-married persons implied by household projections

Established Population	Males			Females		
	20-44	45-64	65+	20-44	45-64	65+
1961	-112	580	-616	-176	303	-563
1971	-122	-879	-636	-167	616	-693
1981	-149	-626	-567	-206	-643	-621
1986	-156	816	303	-216	666	-686
2006	-174	640	624	-236	-657	693
Newcomers						
1971 and 1981	-344	659	678	416	-736	-726
1986	-184	693	-646	-246	-726	-696
2006	-174	-640	-624	-236	-657	693

28 Projected numbers of households – established population

Ref. No.	Persons	Type of household	1971	1981	1991	2001
1	1	Young or middle aged	1,750	1,733	1,838	2,487
2	1	Old	3,405	4,072	4,336	4,723
3	2	Young married couple	1,448	1,085	1,437	1,216
4	2	Middle aged married couple	6,843	5,798	5,771	6,781
5	2	Old married couple	3,726	4,344	4,632	4,673
6	2	Lone parent + 1 child	124	139	131	150
7	2	Non-married couple sharing	2,329	2,522	2,958	3,058
8	3	Married couple + 1 young child	2,338	2,541	4,259	6,131
9	3	Married couple + older child	1,593	2,577	3,170	3,858
10	3	Young or middle aged couple + another adult	1,744	1,547	1,837	1,732
11	3	Old married couple + another adult	888	1,006	1,080	1,083
12	3	Lone parent + 2 children or 1 child + 1 other	311	316	304	372
13	3	Any other combination	755	738	723	676
14	4	Married couple + 3 children (at least 1 young)	3,674	4,642	4,423	5,312
15	4	Married couple + 2 older children	1,476	1,665	1,836	2,031
16	4	Married couple + 1 child + 1 other adult	2,568	2,600	3,210	3,801
17	4	Married couple + 2 other adults	644	438	485	476
18	4	Lone parent + 3 (children and/or adults)	378	356	356	348
19	5	Married couple + 3 children (at least 1 young)	1,346	1,408	1,768	2,058
20	5	Married couple + 2 older children	513	577	639	743
21	5	Married couple + 2 children + 1 adult	1,247	1,423	1,821	1,747
22	5	Married couple + 1 child + 2 other adults	753	641	1,032	1,816
23	5	Married couple + 3 other adults	86	81	68	51
24	5	Other	137	135	131	127
25	6	Married couple + 4 children	638	723	837	877
26	6	Married couple + 3 children + 1 other adult	467	638	613	668
27	6	Married couple + 2 children + 2 other adults	312	357	456	453
28	6	Other	261	273	304	317
29	7+	Married couple + 5+ children	636	665	665	761
30	7+	Married couple + 4+ children + 1 other adult	238	272	273	337
31	7+	Married couple + 3+ children + 2 other adults	186	150	216	224
32	7+	Other	209	237	252	274

Married couples classified where necessary by husband's age

88 Projected numbers of households - nonpersons

Ref. No.	Persons	Type of household	1971	1981	1991	2001
1	1	Young or middle-aged	245	1,325	1,337	1,575
2	1	Old	245	1,230	1,215	1,510
3	2	Young married couple	1,003	1,001	953	2,545
4	2	Middle-aged married couple	323	3,915	4,059	5,155
5	2	Old married couple	152	908	1,351	2,272
6	2	Lone parent + 1 child	11	35	42	85
7	2	Non-married adults (adults)	110	564	853	1,082
8	3	Married couple + 1 young child	602	3,972	3,850	2,695
9	3	Married couple + older child	217	1,961	1,393	1,510
10	3	Young or middle-aged couple + another adult	170	514	1,143	1,811
11	3	Old married couple + another adult	21	111	344	515
12	3	Lone parent + 2 children (at least 1 adult) + 1 other	5	54	130	133
13	3	Any other combination	25	121	255	381
14	4	Married couple + 2 children (at least 1 young)	403	3,504	2,857	2,745
15	4	Married couple + 2 older children	152	1,543	1,107	1,131
16	4	Married couple + 1 child + 1 other adult	157	1,545	2,155	2,510
17	4	Married couple + 2 other adults	33	105	255	427
18	4	Lone parent + 3 (children or/and other)	10	57	140	172
19	5	Married couple + 3 children (at least 1 young)	227	1,372	1,123	1,084
20	5	Married couple + 3 older children	85	425	405	458
21	5	Married couple + 2 children + 1 adult	54	512	1,541	353
22	5	Married couple + 1 child + 2 other adults	45	303	512	557
23	5	Married couple + 3 other adults	5	22	45	52
24	5	Other	3	21	52	51
25	5	Married couple + 4 children	105	532	525	525
26	5	Married couple + 3 children + 1 other adult	35	215	301	353
27	5	Married couple + 2 children + 2 other adults	23	140	240	243
28	5	Other	13	45	155	153
29	7+	Married couple + 5+ children	73	425	425	401
30	7+	Married couple + 4+ children + 1 other adult	15	110	155	155
31	7+	Married couple + 3+ children + 2 other adults	13	75	135	125
32	7+	Other	14	55	155	152

Young under 45
Middle-aged men 45-54
women 45-54
Old men 55+
women 55+
Child up to 15 or
receiving full
time education
thereafter
Young child under 11
Older child 11 and over
Other adults non-persons,
dependent
children over
15, etc.
Married couples (dual) where
necessary by husband's age.

87 Projected household sizes

1. Established population

Persons in household	1971		1981		1991		2001	
	No.	%	No.	%	No.	%	No.	%
1	8,331	12	8,788	13	8,337	12	7,180	12
2	12,882	21.5	12,495	20	14,082	22.5	15,062	27
3	8,918	21	8,687	18	10,228	30.6	11,862	21
4	5,306	18.8	5,328	21	10,060	30	11,722	21
5	4,891	9.5	4,484	10	8,136	10.8	8,818	10.8
6	1,685	4	1,504	4	2,180	4.8	2,396	4.8
7+	1,120	2.5	1,228	3	1,440	3	1,686	3
Total	42,856		44,886		69,513		85,852	
Total population	132,688		144,226		188,038		178,682	
Non-private population	762		847		922		1,034	
Private population	132,108		143,479		187,116		177,648	
Average household size	3.05		3.22		3.17		3.16	

2. Newcomers

Persons in household	1975		1981		1988		2001	
	No.	%	No.	%	No.	%	No.	%
1	454	9.8	2,336	10	2,583	9.5	3,256	9.8
2	1,544	28	6,185	26	5,338	23	12,879	38
3	1,041	20	5,125	23	6,095	22	7,382	21
4	888	19.5	8,268	23.5	8,435	22.5	8,488	18
5	448	9	2,708	11	5,382	14	3,172	8.25
6	582	9.4	1,075	4.8	1,267	8	1,264	3.75
7+	118	2.5	686	3	918	3	872	2.4
Total	5,134		24,908		27,941		34,358	
Total population	18,811		88,708		82,188		109,882	
Non-private population	38		942		158		254	
Private population	18,488		80,889		81,886		108,228	
Average household size	3.01		3.54		3.32		3.17	

The 'Non-private' population refers only to the residents in certain long-stay institutions, not the full Census institutional population.



Appendix C

Social surveys

As part of its sociological work in connection with the expansion of Ipswich, the Institute of Community Studies carried out two social surveys – one in Ipswich itself, the other among potential migrants from London. This appendix reproduces the basic reports of these two studies.

I Ipswich social survey

Introduction

The purpose of the survey was to collect information about local people's attitudes to expansion, about their housing and the neighbourhoods they lived in, and about certain aspects of their life in the town and sub-region. We picked every 150th name from the electoral registers for Ipswich County Borough to give a cross-section of 500 names and addresses in the town. Of these, 390 (78 per cent) were successfully interviewed. Most of the losses were due to removals; only 6 per cent of the 500 people refused an interview. The interview sample tallied fairly closely (in age, sex, marital status and occupation) with the 1961 Census figures for Ipswich, and it can be assumed that the findings broadly hold true for the adult population of the town as a whole. Following the usual statistical procedure, we have in general ignored apparent variations between different groups within the sample (for instance, between people of different ages) wherever these variations are so small that they could be due to chance.

We have divided people into different 'social classes' on the basis of their own occupation (if they were men or single women, and that of their husbands if they were married, widowed or divorced women. The four 'classes' are adapted from the five-fold classification used by the Registrar General. They are: 'professional and managerial' (accounting for 18 per cent of the sample), 'clerical' (including shop workers, insurance agents, commercial travellers as well as clerks, and amounting to 15 per cent of the sample), 'skilled manual' (43 per cent) and 'semi-skilled and unskilled' (24 per cent). Our 'professional and managerial' class corresponds to the Registrar General's Classes I and II; 'clerical' to the non-manual workers in his Class III; 'skilled manual' to the rest of his Class III; and 'semi-skilled and unskilled' to his Classes IV and V. The *Classification of Occupations 1960* was used to allocate people to the appropriate 'classes'.

People have also been grouped according to the district in which they lived. The town was for this purpose divided into ten districts, including the town centre; these are shown in figure 98. The reader should note that these districts are not intended to be either the present or the future 'neighbourhoods' of Ipswich; they are composed of groups of polling districts, combined so as to form some kind of recognisable 'structure' (we were guided in this by 50 preliminary interviews with a sample of residents, by the suggestions of a number of informed local people who were consulted, and by our own observations).

C3 Opinion on Expansion

Strongly approve	18%	55%
Approve	42%	
Have mixed feelings	29%	
Disapprove	12%	10%
Strongly disapprove	6%	
Total	100%	
Number	260*	

* Excludes five who would give no opinion.

Local opinion

We wanted to canvass the opinions of the existing residents, so that their views could be taken into account in the planning proposals. First, what did they think about the suggestion to expand their town? More than half were in favour, and less than a fifth disagreed: this is shown in table C1.

People's anxieties about the expansion were indicated by their answers to a question put to those who welcomed expansion as well as those who had misgivings about it. As table C2 shows, traffic congestion, housing, employment and congestion in general were the biggest worries (this still applied with the answers people gave when they were asked which was the 'most important' of the 'problems' they had mentioned). Men worried more about jobs and about traffic. Those anxious about employment rose from 9 per cent among the professional and managerial people to 27 per cent among the unskilled and semi-skilled.

People were also asked what they thought the benefits of expansion would be. The answers are shown in table C3, again according to the respondent's sex. Men were noticeably more articulate about the likely gains, particularly increased 'prosperity'. There was also a class difference: 17 per cent in the professional and managerial class said they could think of 'no advantage', compared with 32 per cent of semi-skilled and unskilled; and 74 per cent of the former, against 51 per cent of the latter, thought that expansion would bring more trade or prosperity.

We wanted to find out something about how the residents saw the existing town. We began by asking, 'When I say the word "Ipswich" what particular place or building comes into your mind?' About a quarter said 'Nothing' or 'Nothing in particular'. Among the rest, there was great variety. Eight per cent said 'the Civic College', 7 per cent 'the park', 6 per cent 'Christchurch Mansion', and other places were mentioned by 1 per cent, 2 per cent or 3 per cent of the sample. The Cornhill stood out, however: nearly half cited this or 'the Town Hall', and another 12 per cent mentioned other streets or buildings close by or 'the shopping centre' in general.

The shopping centre also emerged when people were asked what things they 'liked about Ipswich as it is now'. Just over a quarter said 'the shops' or 'the shopping centre' and a similar proportion 'the country-town atmosphere'. Similarly just over a quarter mentioned parks and another quarter the town's geographical location – stressing its accessibility to London, to the sea or to the Suffolk countryside. Women spoke about the shops more often than men, and professional and managerial people more often mentioned the town's locational advantages; nearly a third said this was one thing they liked about Ipswich, for instance, compared with about one in ten of the unskilled and semi-skilled people.

A question about what people 'disliked' about Ipswich gave an indication of its present problems, which expansion and redevelopment should try to solve. By far the biggest criticism was about traffic congestion and parking problems; nearly half the sample mentioned one or both of these. About one person in five said that Ipswich was a 'dead town', that there was 'nothing to do'. This complaint was more often made by younger people: 23 per cent of those aged 40 or under, compared with 16 per cent of those aged 41 to 65 and 9 per cent of those aged 66 or over. The other principal 'dislikes' – each mentioned by about one person in ten – were of the 'crowded pavements' in the town centre and of the town's bus services.

People were also asked what they thought the town 'needed' (table C4). The answers must, of course, be considered together with those discussed in the previous paragraph. To sum up the findings from these two questions, the town's main needs (in the view of its present residents) are: more entertainment and sports facilities, including more provision for young people (altogether half those interviewed named a theatre, other entertainment or sports, or youth provision, as the most important 'need' of the town); better traffic and parking arrangements; a civic centre (possibly largely because people knew this is already on its way); and, for something over one person in ten, better public transport.

C4 Opinions on Ipswich's 'Needs'

	Men	Women	Men and women
Theatre	25%	22%	23%
Other entertainment and sports facilities	20%	21%	21%
Main facilities for young people, youth clubs	18%	22%	20%
Civic centre	12%	14%	13%
Encourage expansion, better parking facilities	14%	12%	13%
Better public transport	8%	4%	4%
Other needs	24%	20%	22%
'No need'	17%	16%	16%
Number	177	212	390

* Totals add to more than 100% because some people mentioned more than one need.

Origin of Ipswich residents

Nearly half the sample (48 per cent) had been born in the town, and another 20 per cent had lived there for 20 years or more; 5 per cent had come in the past five years and another 6 per cent between five and ten years earlier.

Of those who have moved to Ipswich within 20 years, about half had previously lived in East Anglia, two-fifths elsewhere in Britain, and a tenth outside Britain altogether. Professional and managerial people had been most mobile, as they are in the country generally. Thirty-one per cent of them had moved to Ipswich less than 20 years earlier, compared with 20 per cent of the skilled manual people and 14 per cent of the unskilled and semi-skilled. Again, four-fifths of the professional and

C2 'Problems' of Expansion*

	Men	Women	Men and women
Monotonic congestion	37%	21%	28%
Housing problems (shortage of housing)	28%	30%	29%
'Too crowded', too many people	16%	23%	19%
Employment problems (not enough jobs)	22%	11%	16%
'More crime'	8%	8%	8%
'Destroy country towns and villages'	7%	6%	6%
Mixing with landless	4%	7%	7%
'More coloured people'	7%	7%	7%
Higher rates	7%	6%	7%
Other problems	10%	3%	6%
No problems	10%	16%	12%
Number	177	213	390

* Totals add to more than 100% because some people mentioned more than one 'problem'.

C3 'Advantages' of Expansion*

	Men	Women	Men and women
There are problems, but in fields, in the work	70%	66%	68%
Better services (entertainment, shops, restaurants)	26%	12%	19%
Better social services (education, hospitals, street lighting)	14%	8%	11%
Personal (financial) improvement (higher pay, better status, more profits)	6%	2%	2%
No advantages	20%	32%	26%
Number	177	213	390

* Totals add to more than 100%, because some people mentioned more than one 'advantage'.

C6 Social Class and Tenure*

	Professional and managerial	Clerical	Semi-skilled manual	Semi-skilled and unskilled
Owner-occupied	77%	65%	44%	36%
Rented from council	11%	28%	36%	38%
Rented from private landlord	12%	10%	18%	26%
Total	100%	100%	100%	100%
Number	66	87	162	69

* Note that this refers to the form of tenure held by the household to which the respondent belonged. Sometimes the legal owner or tenant was not the respondent but the husband of a married woman or, less often, the father of a single person or the son of a widowed mother.

C8 Tenure and Household Type

	Owner-occupied	Rented from council	Rented from private landlord
One person	3%	8%	17%
Couple or more	32%	11%	28%
People with children aged 14 or under	28%	62%	28%
Other households	26%	33%	25%
Total	100%	100%	100%
Number	134	124	72

managerial people moving into the town during that time had come from outside East Anglia, compared with two-fifths of the manual people.

Housing

The purpose of the questions on housing was to find out something about what kinds of people were in different sorts of housing and about their attitudes to their homes. Of the people interviewed, half lived in households which owned (or were buying) their home, a third were in council property and a sixth were tenants of private landlords. The proportions of people in owner-occupied houses were similar among the young, the middle-aged and the old. But younger people were more often in council property (over a third aged 40 or less, compared with a fifth of those over 65) and older people more often rented from private landlords.

The proportion of owner-occupiers falls from about three-quarters among professional and managerial people to about a third of semi-skilled and unskilled (table C6). Since the type of housing is related to the form of tenure, the social classes also differed in the kind of houses they lived in. A third of the professional and managerial people lived in detached houses, compared with less than one person in ten in each of the other three classes. In the town as a whole, about half the people lived in semi, the exception was the clerical group, among whom the proportion was nearly three-quarters. Manual workers more often lived in terraced houses – just over a third of them did so.

One can also look at housing the other way round and ask what sorts of people are owner-occupiers, council tenants and private tenants respectively. This gives a rather different impression. For example, although more professional and managerial people owned their houses, more than half the owner-occupiers in Ipswich were manual workers (37 per cent skilled, 18 per cent semi or unskilled). The type of households to which respondents belonged are shown in table C6, analysed again according to the form of tenure. Single people account for a relatively high proportion of the private renters, families with young children for a relatively low proportion. Few council tenants live in one or two-person households, which suggests that there may be scope for more publicly-provided small dwellings.

Districts

The Introduction referred to the ten 'districts' into which the town was divided for the purpose of analysis. The forms of tenure in different districts are shown in table C7. St. John and North Ipswich have the highest proportions of owners – about three-quarters. Whitton and Chantry, where there are large council estates, have the most council tenants – again about three-quarters. Gainsborough (which, on our definition, is larger than the council estate of that name) and Woodborne have a fairly even split between owner-occupiers and council tenants. Only the inner district has a large proportion of private renters – about half. There are similar variations in the type of housing. North Ipswich, St. John and Rushmere have more detached houses than each district; Gainsborough and Whitton have more semi; Stoke and Inner Ipswich have more terraced housing. With such differences in housing, there are wide variations in the sort of people living in different parts of the town. Social class is an obvious example (table C8). The figures broadly confirm the common view, North Ipswich is

indeed, as a number of informants put it, 'where the well-off people live'. Rushmere too has a high proportion of non-manual people – the proportion would be higher but for the fact that the district, as defined by us, included part of the Rushmere council estate. Most of the other districts are more mixed, but with manual workers (particularly skilled) predominating.

The districts vary in the ages of their residents. In the town as a whole, just over a quarter of the adults are aged under 40, nearly half are aged between 40 and 59, and a quarter are 60 or over. But in Inner Ipswich, about half the people are 60 or over. Whiston and Cherry, on the other hand, have relatively young populations; about half their adults are aged under 40.

There are also variations in the patterns of relationships with relatives and friends. The proportions of people with relatives living in Ipswich were similar in most districts – between half and three-quarters had six or more. But there were bigger variations in the proportions with relatives living within 'five minutes walk' – the highest were in Stoke, Gainsborough, Cherry, Whiston and Westbourne. Stoke was also the district with the highest proportions of people having six or more 'close friends' living within two minutes.

An associated point is about population stability; there are variations in the extent to which a district's people are 'settled'. The proportion born locally provides an index of this. North Ipswich had relatively few people who were born in the town – only about one in five, compared with about half in the town generally. The proportions were relatively high in Stoke – two-thirds – and in Gainsborough – between half and two-thirds.

These districts, as explained earlier, were somewhat arbitrary divisions of the town in order to allow comparisons to be drawn. Another question, equally important, is how people themselves see their part of Ipswich. We asked two questions on this, one about the name they gave their locality, the second about its boundaries. On names, there seemed wide differences in the degree of consensus among local residents. There was most agree-

ment on the council estates, notably Cherry (the biggest estate) but also Gainsborough, Whiston, Castle Hill and White House. Smaller numbers on the Priory Heath estate said 'Priory Heath area'; still smaller numbers gave 'White House estate', 'Wickenhall', 'Necton estate' and 'Greenwich estate' as the names of their areas. People in both the Rushmere council estate and the private parts of Rushmere said 'Rushmere' or 'Rushmere Road area'. Private estates mentioned were 'The Croft' or 'Croft estate', 'Rivers estate', and 'Belstead' (the private part of Cherry). The only older areas with any noticeable sense of identity were St John's end, even more, Stoke (four-fifths of its residents called it that). No other part of the town commanded the agreement of more than a few people.

The second question was more complicated. We asked people to indicate on a large-scale map 'roughly where you think this neighbourhood in Ipswich begins and ends'. Of the 380 people in the sample, only 12 said they could not do this. The others helped the interviewers to draw in the boundaries – along the road or that railway line, down to this corner or that park gate, and so on. We thus ended up with 378 local maps showing people's 'subjective neighbourhoods' inside Ipswich.

The first thing to note is that there was great variety in the sizes of these 'neighbourhoods'. As table C9 shows, a relatively large proportion of people – one in five – gave areas of 20 acres or less, and more than half gave up to 100 acres. But the range was wide. We analysed the size of people's 'neighbourhoods' by many other things – including their age, sex, marital status, social class, length of residence in the district – but there was no marked difference between the different groups of people. We also compared the people living in the ten different districts discussed above. This comparison suggested that people's 'subjective neighbourhoods' were relatively large in Rushmere and Stoke, intermediate in St John's and Cherry, and relatively small in the other districts. There is no obvious general explanation for these variations.

C7 District and Tenure*

	St John's	North	Rushmere	Inner	Gainsborough	Stoke	Westbourne	Whiston	Cherry
Owner-occupied	82%	76%	87%	46%	48%	42%	37%	22%	53%
Rented from council†	1%	15%	10%	4%	48%	28%	40%	73%	31%
Rented from private landlord	17%	7%	14%	48%	8%	26%	22%	—	16%
Total	100%	100%	100%	100%	100%	100%	100%	100%	100%
Number	89	64	21	83	27	24	30	23	67

* The town centre is excluded because our sample included only seven people living there.

C9 Social Class and District

	North	Rushmere	St John's	Whiston	Inner	Gainsborough	Westbourne	Cherry	Stoke
Professional and managerial	42%	32%	30%	17%	15%	15%	10%	4%	4%
Classical	21%	21%	20%	13%	11%	18%	16%	18%	4%
Skilled manual	28%	33%	44%	44%	44%	44%	52%	51%	40%
Semi-skilled and unskilled	12%	8%	18%	25%	30%	27%	27%	25%	42%
Total	100%	100%	100%	100%	100%	100%	100%	100%	100%
Number	43	58	81	23	81	82	30	48	24

23. *Answers of 'Subjective Neighbourhoods'*

Size in acres	% of sample
Up to 20	28%
21 - 40	10%
41 - 80	13%
81 - 100	8%
81 - 100	6%
Up to 100	96%
101 - 200	33%
201 - 300	6%
301 - 400	3%
401 or over	6%
Total	100%
Number	376

As well as these differences in the sizes of people's 'neighbourhoods', there were also many disagreements about where the boundaries should be drawn. But there were, at the same time, many boundaries about which there was agreement. This is shown in figure 41 (Chapter 7), which is a composite map combining all the 376 individual ones. The thickness of the lines on the diagram indicates the number of respondents who gave it as a boundary to their 'neighbourhood'. One could sum up by saying that, though there was wide disagreement on size and on the boundaries within a certain area, there was nevertheless high consensus about certain boundaries. These boundaries are mainly physical features – a major road, a railway line, the river. This map was taken into account in considering highway proposals.

Patterns of movement

As well as collecting information about houses and about differences between different parts of the town, we wanted to use the survey to get a more dynamic view of Ipswich. What movement was already going on, from one district to another? And, still more important, what future movements were likely to take place with the expansion?

Altogether 214 people said they had moved into their 'present district' (the definition was left to them) during the previous 20 years. Over two-thirds (146) had moved inside Ipswich. Eighteen had moved within one of the 'districts' distinguished by us and 128 between such districts. Judging by their answers, the districts which had lost most population were Inner Ipswich and Stoke – this is mainly because of large-scale clearance programmes. Gearsborough came next – the movers presumably being largely members of the council estates' second generation. The districts which had received proportionately most people were Chantry and North Ipswich. So far as we could tell with such small numbers, the main shifts between districts seemed to be –

from Inner Ipswich to Chantry (in particular), North Ipswich, Westbourn, Gearsborough and St. John's;

from Stoke to Chantry and North Ipswich;

from Gearsborough to all other districts except Stoke.

Altogether 71 people (18 per cent of the sample) said they wanted to leave their present district. Council ten-

ants were at least as ready to move as others. 21 per cent of them wanted to go, as did 17 per cent of owner-occupiers and 16 per cent of private tenants. People in North Ipswich were the least keen to move (only 7 per cent wanted to). Three-quarters, when asked where they would like to move to, gave places inside the Ipswich sub-region; we asked the rest where they would choose inside this area if they had to do so. Of the 71 'potential movers', 15 either could not specify anywhere or gave answers so vague that they could not be classified. Among the remaining 56, no clear pattern of preferences emerged, except that nearly half mentioned places outside Ipswich itself. Among these, only Felixstowe (nine people) and Nacton (four) stood out. Another question, about moving from their present home, asked whether they were likely to move in the next two years: 43 said they were and, of these, 28 knew where they expected to move to. With such small numbers, it is hardly surprising that there was, again, no discernible indication as to what districts inside Ipswich were preferred. But it may be noted that, of the 28, nine said they would move within their present 'district' as defined by us (in other words, they would not be going far) but ten said they would be going outside Ipswich (though inside the sub-region).

Four main reasons were given for wanting to go to another district: each was mentioned by about a fifth of the 71 who sought a move. The reasons were: wanting a better district in the 'local' sense ('It's an extremely rough area round here', 'We want to get away from the council estate'); wanting a better district environmentally (complaints about heavy traffic, noisy factories, etc.); wanting a better or more suitable house; and wanting to live in or near the countryside. Owner-occupiers more often said they wanted 'the country', council tenants a better physical environment, and private tenants better housing. The overwhelming reason for staying, given by three-quarters of the people who did not want to move, was their attachment to the district – 'I've lived here a long time and I'm at home here', 'I've put down my roots here and I don't want to move'.

More people (42 per cent of the sample) said they wanted to move their house than district. This proportion is higher than might be expected – is 'large urban areas' (populations of 20,000 or more) throughout England, only 29 per cent wished to move.¹ The most common reasons were wanting a more modern home (20 per cent), wanting to own rather than rent (14 per cent), wanting a bungalow (12 per cent); 12 per cent said they wanted a larger place and another 12 per cent a smaller – the former were predominantly people with children, the latter older people. Older people were generally much less keen to move, but nearly half of those who were given 'too much room now' as the reason. Again, council tenants were no less ready to move than other people: 48 per cent of them wanted to move house, as did 44 per cent of private tenants and 38 per cent of owner-occupiers. The main reason given by council tenants – it was cited by a third of those who said they would like to move – was that they wanted to buy their home. Others wanted somewhere 'more modern' or a house with a garage. Among private tenants, who were generally in the worst property in Ipswich, more than half of those wanting to move house gave as their reason the desire for a 'more modern' home.

To sum up, there seem fairly strong demands among Ipswich residents for new homes. It is not possible to quantify the different sorts of demand, partly because the numbers in our sample were relatively small, but also

¹ Cullingworth, J. B. *English Housing Trends* p. 78.

because we cannot know how many people would be prepared to pay the extra cost of the better houses (or pleasant districts) they say they want. But a number of different demands can be distinguished. First, some owner-occupiers, mainly better-off people, want to move their district in order to be 'in or near the country'; it should be possible to provide for low-density housing on the outskirts of the proposed new districts that would appeal to at least some of these. Secondly, there are those who want to move to a larger or smaller dwelling than they have now; each of those sorts of person accounts for about one in ten of those who want to move home. Smaller or larger houses in the proposed new districts could meet the needs of some. Thirdly, it should be possible to cater for some of those who are living in privately-rented property and who want a better house - with property either for sale or to rent. Finally, the expansion areas could provide a new home for many of the existing council tenants who will be buying a home or who want a larger or more modern (and therefore higher rented) home and also for those who seek a better physical environment than their present estate.

The council tenants are particularly important; it seems that there are good prospects that some existing council tenants will move, either as purchasers or tenants, to the new expansion districts. This movement could help in two ways: by mixing the established population and the newcomers, and by freeing older council property inside Ipswich for those newcomers who would prefer it.

Gardens

With the design of new homes in mind, the survey included some questions about gardens. How much did people care about them? What sort of people, if any, might be willing to do without gardens? What needs did gardeners mean that might be met in other ways?

We asked those whose household had exclusive use of a garden (95 per cent of the sample) what they mainly used their garden for and whether they would consider living somewhere without a garden if the house was satisfactory in other ways; 26 per cent said they would. The 72 per cent who were unwilling to be without a garden were asked what they felt were the advantages they would be unwilling to give up.

Table C10 shows that the more 'functional' uses of a garden - drying washing, storage, extra space - are less valued than gardening or using the garden as somewhere to sit or relax. Even among people with children, gardening and 'relaxing' in the garden were ranked about as high as their children's needs.

Nevertheless, a substantial minority of people are apparently ready to consider doing without a garden, and it is worth looking more closely at who they are. First, the people who said they wanted to move out of their present home were rather more ready than others to surrender a garden - 35 per cent against 23 per cent. Secondly, tenants were more willing to do without a garden than were owner-occupiers - 34 per cent, compared with 23 per cent. Yet professional and managerial people, most of whom were owners, were markedly more willing than those in other social classes - 40 per cent against 35 per cent. Professional and managerial owner-occupiers were more willing to give up their garden than other owner-occupiers, and among the minority of professional and managerial people who were tenants gardens were badly valued at all. Though the numbers are small, the findings are striking. All the 51 professional and managerial people in owner-occupied dwellings had a garden; 33 per cent said they would

consider doing without a garden, compared with 18 per cent among other owner-occupiers. There were only 15 tenants among the professional and managerial people, and of those four had no garden anyway, but of the remaining 11, as many as eight (73 per cent) would consider giving up a garden. This suggests that they would be a demand from some such people for dwellings without gardens or with only small ones.

Car ownership and use

Half the people in the sample lived in households which had a car; this is a similar proportion to that in the whole country. As elsewhere, present car ownership is related to social class (table C11). But 15 per cent of the professional and managerial people got their first car in the two years before the survey, compared with 10 per cent among skilled workers and 26 per cent among unskilled and unskilled. The proportions were 12 per cent among owner-occupiers, 20 per cent among private tenants and 30 per cent among council tenants. Thus it is a reasonable prediction that, in the coming years, manual workers will acquire cars faster than non-manual, and council tenants in particular.

This not only suggests that the new rented housing should provide for a high proportion of garages, but also that there is likely to be a growing problem of parking in the town's existing council estates. Table C12 shows where people living in different sorts of property parked their cars. Already more than half the council tenants with cars were leaving them in the street.

We asked people their reasons for acquiring a car and what they 'mainly' used the car for. The answers are shown in table C13. The overwhelming reason was 'pleasure'; work and getting to work on their own accounted for only about a fifth of the answers.

C10. Type of Housing Tenure and Gardening (Households with cars)

	Owner-occupied	Council tenant	Private tenant
In garage	58%	37%	40%
In garden	4%	2%	—
In street	3%	57%	12%
Elsewhere	3%	4%	7%
Total	100%	100%	100%
Number	121	48	15

C13. Reasons for Acquiring Car and 'Main' Use (Households with cars)

	Reason for acquiring	'Main' use
Pleasure	48%	43%
Pleasure and getting to work	32%	33%
Getting to work	7%	6%
For work	13%	14%
Other	2%	—
Total	100%	100%
Number	162	163

C10 Use of Gardens and the Male Advantages of Gardens*

	Use of garden	Main advantage of garden
Gardening, growing flowers, fruit, vegetables	60%	44%
Growing plants in	13%	36%
For children	12%	17%
For pets	8%	8%
Drying washing	8%	18%
Storage (bikes, petrol)	1%	1%
Pick-up for pets	—	12%
Other special	—	10%
Total number	300	266

*Totals add to more than 100 per cent because some people gave more than one answer. The total number of people in the first column is all those whose household had the exclusive use of a garden; in the second all those who were unwilling to go without a garden.

C11 Social Class and Car Ownership

	Managerial and professional	Clinical	Skilled manual	Semi-skilled and unskilled
Household has two or more cars	12%	7%	1%	5%
Household has one car	55%	54%	45%	28%
Household has no car	23%	23%	51%	70%
Total	100%	100%	100%	100%
Number	88	87	102	88

C14 Method of Travel to Work and Time Taken

All forms of travel	Time taken	On foot	Bicycle	Motor bike	Car	Bus
17%	— 5 mins	58%	58%	53%	45%	31%
32%	— 10 mins					
23%	— 15 mins	32%	34%	42%	34%	50%
15%	— 20 mins					
8%	— 30 mins	10%	10%	8%	13%	18%
3%	— 40 mins					
1%	— 1 hour					
1%	Over 1 hr.					
100%	Total	100%	100%	100%	100%	100%
201	Number	55	73	19	53	38

C15 Time Taken and 'Convenience' of Work Journeys

	— 5 mins	— 10 mins	— 15 mins	— 20 mins	21 mins or more
'Very convenient'	71%	33%	28%	10%	4%
'Convenient'	23%	60%	42%	40%	33%
'Fairly convenient'	8%	14%	18%	30%	44%
'Inconvenient'	—	1%	11%	17%	28%
'Very inconvenient'	—	—	4%	3%	4%
Total	100%	100%	100%	100%	100%
Number	34	68	47	30	28

Journey to work

Of the 216 men and women in the sample who worked full or part-time outside their homes, about a quarter worked in the town centre. A large proportion worked in what we have called inner Ipswich, but women more than men; more men than women worked in the industrial areas of Gainsborough and Stoke. Eleven per cent of men, but no women, worked outside the County Borough. Workplaces were similar for women working part-time and those working full-time.

If one looks at the districts in which people live and considers the time taken to travel to work, the picture is broadly as follows—

First, there are the districts where most people—something like two-thirds or three-quarters—are within ten minutes of their work (this is ignoring the method of travel, discussed below). These districts are Gainsborough, Stoke, Inner Ipswich, St John.

Secondly, there are the districts where the proportion within ten minutes of their work is about one-third. These districts are North Ipswich, Westbourne and Chantry.

Thirdly, there are the two districts—Rushmere and Wilman—where the proportion is lowest: in these districts, only about a sixth of the workers have a work-journey of ten minutes or less.

Among the people in the sample who worked outside the home, 9 per cent usually travelled to work on foot, 26 per cent by bicycle, 27 per cent by car, 18 per cent by bus and 9 per cent by motor bike or scooter. Just one man went to work by train. There are some noticeable differences in the methods of travel used by men and women. Part-time women workers in particular more often went to work on foot—a fifth did so; part-time jobs are usually closer to people's homes than full-time. Women workers in general went by bus more often than men—more than a third, against a tenth. And the car was used more by men (a third) and women working full-time (a quarter) than by women working part-time (only 2 per cent). There are also some differences according to occupational class. The proportion cycling rises from 18 per cent among managers and professionals to 45 per cent among semi-skilled and unskilled workers, and the car is used by 64 per cent of the former against 10 per cent of the latter.

The time taken in getting to work is shown in table C14. About half the Ipswich people (49 per cent) take ten minutes or less to get to work and 86 per cent take 20 minutes or less. People who travel by bus have rather longer journeys than others.

People's subjective assessments of the 'convenience' of their work-journeys are shown in table C15, where they are related to the time taken. People's attitudes were naturally affected by the length of their journey, those saying 'very convenient' falling from 71 per cent when the journey was five minutes or less to 4 per cent when it was over 20 minutes. But there was little apparent discontent among the minority taking over 20 minutes; only a third rated the journey 'inconvenient' or 'very inconvenient'. The method of travel also made some difference to attitudes, the main variation being that people who went by bus were the least content (13 per cent of these described their journey as 'very convenient') and those who walked most so (83 per cent said 'very convenient').

Questions about shopping were put to the 214 housewives in the sample. Table C18 shows their answers to questions about where they 'usually' shopped for different things, how they 'usually' travelled to the shops and how long the journey took them. Groceries and meat are mostly bought at local shops, but a substantial proportion of housewives (between a quarter and two-fifths) buy them in the town centre. Shoes, clothing and furniture are almost entirely bought in the centre.

All respondents, not just housewives, were asked about visits to the town centre: nearly half had been during the previous 24 hours and 86 per cent at some time in the previous week. Older people went less often: 66 per cent of those aged over 65 had been during the previous week against 88 per cent of those aged 65 or less.

The town centre is apparently relatively accessible to most residents. Three-quarters said they could get there in 15 minutes or less, and only 2 per cent had a journey of more than half an hour. Less than one person in ten rated the journey as 'inconvenient' or 'very inconvenient'. The bus was the main method of travel: 46 per cent 'usually' went by bus, 24 per cent by car, 12 per cent by pedal or motor cycle and 17 per cent walked. The method of travel was influenced by whether the family had a car and by proximity to the centre. Forty-two per cent of the managerial and professional group (more of whom had cars) usually went to the centre by car, compared with 12 per cent of the unskilled and semi-skilled. Of people living in the inner district, as many as 57 per cent walked.

People went into the centre largely for shopping: 62 per cent said this had been the 'main purpose' of their last visit. As far as we could judge, these visits were divided about equally between 'general' shopping (groceries, bread, meat, etc.) of the kind that could have

been done elsewhere in the town and shopping for more 'specialised' goods not available locally.

Over a third of the people had, on their last visit, done other things than the 'main' thing they had gone for. Women had done this more often than men – 43 per cent against 27 per cent. Men who worked in the centre, in particular, had seldom done anything else on their last visit, but Women working there had, 10 per cent of the former for example had shopped as well as going to work, compared with 46 per cent of the latter. In general the combined visits were when people did shopping as well as something else.

Leisure

To have carried out a thorough study of leisure in Ipswich would have needed a separate survey. With the present survey, the questions on leisure had to be limited. We excluded altogether activities inside the home or garden which, in Ipswich as elsewhere, take up most of the leisure time of most people. Even outside the home, we concentrated on a selected range of activities, asking about certain 'facilities' and certain 'recreational activities', and also about membership of clubs and other social organisations.

Table C17 shows whether people used the ten specific 'facilities', how recently and where. The various activities are mainly carried out inside Ipswich, the most notable exceptions being dancing and eating out – which may suggest that the town, even with its present population, could support a new dance hall and more restaurants.

There are wide variations in the leisure activities of different sorts of people. Men go to pubs much more often than women – the proportions who had been during the previous week were 57 per cent and 14 per cent respectively. Eating out is more common among

C18 Shopping Patterns*

	General groceries	Meat	Drycleaning	Shoes	Clothing	Furniture
<i>Where 'usually'</i>						
Locality	83%	32%	48%	7%	2%	7%
Town centre	17%	37%	52%	92%	98%	91%
Outside Ipswich	—	11%	—	1%	2%	2%
Total	100%	100%	100%	100%	100%	100%
<i>Main method of travel</i>						
Foot	66%	81%	42%	17%	17%	16%
Car	16%	7%	12%	14%	16%	16%
Bus	16%	10%	36%	65%	62%	68%
Cycle	13%	16%	10%	6%	7%	6%
Total	100%	100%	100%	100%	100%	100%
<i>Journey time</i>						
Five minutes or less	96%	47%	27%	11%	6%	6%
Between five and 15 minutes	48%	41%	66%	84%	97%	96%
More than 15 minutes	16%	12%	16%	31%	34%	36%
Total	100%	100%	100%	100%	100%	100%

* The proportions in the table are based on a total number of 214 housewives, except that small numbers have been excluded when, for instance, most respondents said, or the respondent calculated never used a dry cleaner etc. as did some old people, never bought furniture

	Public bath-or pavilion	Dinner restaurant	Watch professional football	Cinema	Bingo	Theatre	Dance hall	Museum	Concert	Play tennis
<i>When last used</i>										
During previous month	26%	22%	16%	11%	8%	6%	4%	3%	3%	1%
Not during previous month but during previous year	14%	32%	8%	22%	9%	18%	6%	22%	11%	2%
Not during previous year	47%	47%	76%	67%	47%	74%	81%	76%	86%	97%
Total	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Number	282	280	260	280	280	280	282	280	280	280
<i>Where</i>										
Inside Ipswich	77%	82%	87%	95%	82%	81%	48%	82%	83%	76%
Outside Ipswich	22%	47%	20%	4%	18%	19%	49%	18%	17%	24%
Total	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Number	204	204	87	130	61	88	38	97	82	10

non-manual people than manual, and among younger people than older. Men watch professional football (specially all supporting Ipswich Town) more than women – 32 per cent had done so in the previous month compared with 3 per cent of women. Younger people go to the cinema and to dance halls more than older. Manual workers go to bingo rather more than non-manual, but the latter go more to the theatre and to a museum or art gallery.

Participation in certain 'outdoor recreational activities' is shown in table C18. This shows that 'going for a drive' is common, as is going to the seaside. The fact that our interviewing was done in October should be borne in mind. In midsummer the proportion who had picnicked, been for a drive and above all gone to the sea would clearly have been much higher. Much of the sort of

recreational activity covered by table C18 takes place within the sub-region, and the popularity of Felixstowe – 'Ipswich-by-the-sea' – stands out in particular. On the other hand, some people obviously travel relatively long distances for drives or picnics.

Altogether 38 per cent of those in the sample belonged to at least one club or social organisation, and about three-quarters of them seemed to be active participants, in the sense of having attended during the previous month. A quarter of the clubs they attended were in central Ipswich, less than one in ten outside the town altogether. Thus the majority of clubs were in other parts of the town than the centre.

Social class made a big difference to club membership. Fifty-five per cent of professional and managerial people belonged to clubs, for instance, compared with 28 per cent of semi-skilled and unskilled people. But those manual workers and their wives who did belong attended more frequently; among the people who were members, three-quarters of the semi-skilled and unskilled had been during the previous week compared with less than half the professional and managerial people.

In all social classes, more men belonged to clubs than women; but professional and managerial men most of all – 71 per cent of them belonged, compared with 45 per cent of women in the professional and managerial group, and compared with 47 per cent of skilled manual men and 32 per cent of semi and unskilled.

Social clubs, including those sponsored by a firm, were mentioned most often (24 per cent); sports groups and women's organisations were attended by about a fifth each; slightly less than a tenth mentioned church clubs and political party meetings respectively. Old people's clubs accounted for another 6 per cent and 12 per cent of those who belonged mentioned a variety of other sorts of clubs or organisations.

Conclusion

The general picture of Ipswich that emerges from this survey is of a town which, despite its rapid growth and industrialisation, is still relatively compact and regarded by most of its residents as having a 'country town' atmosphere which they value. There is clearly a good

C18 Participation in Certain Outdoor Recreational Activities

	Go for ride in car	Go to seaside	Picnic	Swimming
<i>When last used</i>				
During previous month	56%	31%	4%	2%
Not during previous month but during previous year	27%	31%	41%	2%
Not during previous year	23%	17%	48%	96%
Total	100%	100%	100%	100%
Number	280	280	268	280
<i>Where</i>				
Ipswich	8%	—	8%	—
Felixstowe	22%	68%	14%	33%
Elsewhere in sub-region	28%	3%	17%	33%
Outside sub-region up to 20 miles	18%	18%	24%	11%
Outside sub-region up to 50 miles	10%	18%	28%	11%
Outside sub-region over 50 miles	7%	3%	9%	8%
Total	100%	100%	100%	100%
Number	258	324	268	18

deal of goodwill in the town towards the idea of expansion, particularly if it preserves the good qualities of present day Ipswich and if it offers some hope of solving the town's problems, particularly those concerned with traffic and parking.

The information on people's attitudes towards housing, and on recent movement within the town and the area immediately around it, is also relevant to the expansion. There is a good chance that some Ipswich residents, preferring to move 'nearer the country', will want to buy or rent homes in the lower density parts of the expansion area. There also seem fairly good prospects that some Ipswich Corporation tenants will be willing to transfer to the new areas and, by freeing council housing for newcomers from London, facilitate the kind of inter-mixture that will help promote social integration.

On leisure, although most needs are met inside the town, it is deficient in some forms of entertainment. It could do with more restaurants, for instance, and better provision for dancing. There is every hope that, with the larger population that expansion brings, the town's amenities can be improved and enriched in such ways as these.

II Survey of potential migrants from London

Introduction

The survey in London had two main purposes. The first was to provide some indication, inevitably in general terms, about the kinds of people who might be expected to move to Ipswich. The second was to throw more light on various policy suggestions we had previously formulated.

We carried out two small surveys in London, each corresponding to the two main kinds of recruit from the metropolis to the new and expanding towns. Many such migrants move with their employers; the proportion of householders going in this way varies from about half to three-quarters, the proportion generally being higher in new towns than in the GLC-sponsored expanding towns. Most of the rest of the migrants go through the Industrial Selection Scheme. With Ipswich and similar expansions, the hope is that new people will go through the ISS then have gone to most new towns. Partly because of this emphasis in policy, partly because of the difficulty of getting a sample of employees who might move with their employer, we have concentrated on the Industrial Selection Scheme.

The structure of the paper is as follows. First, the Industrial Selection Scheme is briefly described. Secondly, we report the findings of our sample survey of people covered by the scheme. Thirdly, we report on a small study of some employees who had opted to move to another expanding town with one particular firm.

How the Industrial Selection Scheme works

The Industrial Selection Scheme, administered by the Greater London Council and the Ministry of Labour, is a means of linking workers in London with jobs and housing in new and expanding towns. It is, in effect, a register of workers in the Greater London area who have expressed a willingness to move to a new or expanding town, and who are also in some way placing a demand on London's council housing stock. Those on the register are of five kinds: (i) GLC tenants, (ii) Borough Council tenants, (iii) tenants of Housing Trusts (such as Peabody), (iv) people on Borough Council housing lists, and (v) people who have registered directly with the GLC for housing in new or expanding towns. There were in December 1988 about 40,000 people on the register. Applicants' cards are filed according to Ministry of Labour trade codings. If a worker is qualified for two or more jobs, a copy of his card is filed under each relevant trade code. The colour of the cards indicates the source of recruitment (council tenant, housing list, etc.): if he is on a housing list or is a 'direct registration' the degree of his housing need is indicated on a four-fold scale. These two elements, along with the obvious one of the relative scarcity of his work skill, determine in greater or lesser 'priority' for nomination for a new or expanding town. Other things being equal, present tenants of GLC and Borough Council housing have priority (the notion being that a dwelling vacated is as good as a new one built), and among those not already Council or Trust tenants, applicants with the greatest housing need come first.

The starting point for the ISS is the need to ensure that those who move to new and expanding towns have jobs as well as houses there. The process begins with a firm which is planning a move or is already relocated. Let

CT2 Descriptions - ISS Sample Compared with Married Men in England and Wales

	ISS sample	England and Wales 1991*
Professional and managerial	6%	21%
Clerical skilled manual	7% 31%	8%
Semi-skilled	27%	20%
Unskilled	6%	8%
Total	100%	100%
Number	88	---

*Source: Census 1991, Occupational Tables, Table 20

us say that Jones Brothers, an engineering firm, is moving to Barbury. Jones has persuaded four of his eight fork-lift drivers to move with the firm; the rest are unwilling to leave London. Jones informs the local labour Exchange that he needs four fork-lift drivers. They first try to fill the vacancy from local sources and, if that fails, pass it on to the GLC. The GLC then goes to the ISS register, pulls a number of cards from those filed under the appropriate code, sends the cards to the Ministry of Labour, which in turn passes them on to Jones. As many as 20 names may be picked for each vacancy because many men may no longer be interested in moving at all, is going to the parental town or in the job itself. If there are many fork-lift drivers on the file, then the priorities mentioned earlier may come into play. In practice, however, this mainly seems to happen with semi-skilled or unskilled jobs, because with skilled ones there are often relatively few applicants to choose from. Jones arranges interviews either in London or Barbury and selects his men. The GLC is told when men are taken on, visits the families in their London homes and forwards a tenancy report to the local housing manager, together with a 'nomination certificate'. The local housing manager in the expanding town usually faces up the tenancy.

The sample

The sample of names and addresses for interview was drawn directly from the card index that forms the ISS register. The register is continually in use, so that as many as a tenth of the cards may be out at any one time. The sample therefore under-represents people in the occupations, probably mainly skilled ones, that happened to be in demand at the time we were selecting. The method of selection was to sample at measured intervals in the file drawers. We included only people living in the northern and eastern boroughs of Greater London, partly because we thought that people moving to Ipswich (or to Northampton, the other expansion on which we had been asked for advice) would be more likely to come from these parts of London, partly to simplify the organisation of the survey. People living outside Greater London were excluded (the ISS list includes a few people living in GLC estates outside the GLC area), as were women, single men, and men in the Armed Forces. In drawing the sample, we also had to take into account the fact that many applicants have more than one card. To avoid this biasing the sample, we eliminated half those who had two listed occupations, two-thirds of those who had three, and so on. After these various eliminations, we had 249 names, which we reduced 'randomly' to 150 as the sample to be approached for interview.

Of the 150 people, 89 were successfully interviewed. As many as 34 of the rest had moved; these were predominantly younger people — three-quarters of the householders were in their twenties — and, as far as we could judge from incomplete information, most had been rehoused in London by the GLC or their borough, had moved to a new or expanding town or had started to buy a house. Most of the others not interviewed were people who reported that they were no longer interested in moving to a new or expanding town. Of these, five had either changed jobs or had decided that they did not want to leave their job in London; the other four had started to buy houses in London.

We recorded certain standard information from all the 249 eligible people picked from the register, and a comparison of these with the 89 actually interviewed sug-

gests that the sample interviewed was broadly similar to that selected. Thus the people we saw were a reasonable cross-section of the people whose cards were on the ISS register (or at least of those who were married and living in north or east London). As we have said earlier, this excludes the people — as many as one in ten — whose cards were out at the time, and these presumably included proportionately more of those likely to move. A bigger difficulty is that we cannot generalise from the sample to people who will move to Ipswich through the ISS, because we cannot assume that the town's occupational needs to be met through the ISS will reflect the occupational structure of the Register. A final warning must be sounded — on numbers: in some analyses, the numbers in certain categories are small and too much should not be made of apparent percentage differences. In general, we have only said that there is a difference when the variation is larger than could be explained by chance.

What sort of people?

Our informants were men and we asked them about their wives and other household members as well as themselves. About a third of the men (35 per cent) were aged under 30, rather more than a third (37 per cent) in their thirties, just over a quarter (27 per cent) in their forties, only six (6 per cent) were aged 50 and over. Like other migrants, the ISS people who move are likely to be predominantly young couples. They are also likely to have young children: in the sample interviewed 81 per cent had children of 16 or under (6 per cent of those had children of 17 or over as well), 4 per cent had children of 17 or over only, and 18 per cent had no children. Those without children were mainly aged 50 or over (their children had left home) or under 30 (they had not started a family). Nearly three-quarters of the households had three, four or five members; these were mainly just couples with one, two or three children. The commonest household type, that of more than a third, was a couple with two children. In only nine households were there other adult relatives; these were mostly where couples in their twenties were living with the wife's or husband's parents.

The occupations of the men in the sample are shown in table C19 grouped according to an adaptation of the Registrar General's classification described in the first page of this appendix. For comparison, the 1991 proportions for England and Wales are included (figures for Greater London are not available). The ISS sample includes relatively few professional and managerial people. Because there are also few clerical and shop workers in the sample, all non-manual workers have been combined in later analyses. On the Registrar General's classification, the proportion in the sample with skilled manual jobs is surprisingly large. On the Ministry of Labour classification, the proportion of semi-skilled and unskilled workers would be higher. Strangely as it may seem, the two Government departments have different systems of classifying occupations: lorry-drivers, for example, are regarded as semi-skilled by the Ministry but skilled by the Registrar General.

We asked people about their own income (gross and net) and about that of their household (excluding from the household for this purpose any members such as parents, who would not be moving out). The results are shown in table C20.

Nearly half the potential migrants received from £18 to £20 weekly net and more than a third over £20, the net household income of well over half was more than

	Personal		Household	
	Gross	Net	Gross	Net
Up to £15 weekly	7%	15%	2%	7%
Over £15-£20	30%	45%	17%	25%
Over £20-£25	28%	32%	33%	33%
Over £25-£30	15%	8%	10%	17%
Over £30	8%	2%	38%	12%

* Information from 67 people, the two who refused information on income are excluded.

£20 a week: it does not follow of course that they will receive similar income when they move. Apart from the fact that household income may be lower because wives may find it more difficult to get jobs, the husband's income is likely to drop. As is shown later, one of the main reasons for refusing jobs offered in new or expanding towns was that the new jobs carried less pay. We did not ask systematically about this but were given a number of examples, for instance an auto electrician earning between £22 10s and £26 a week gross who was offered a job at £16 a week, and a gas fitter earning £25 to £30 who was offered £12. Income is of course related to occupational class, but the main difference in the sample was between the unskilled manual workers and the rest - this non-manual workers, as a group, earned no more than the skilled workers. The proportion of men with a net personal income of over £20 a week was 43 per cent among non-manual workers, 46 per cent among skilled manual and 25 per cent among unskilled and semi-skilled. The same thing seemed to be reflected in car ownership. In the sample as a whole just over half had cars; the proportions were 56 per cent among non-manual workers, 59 per cent among skilled manual and 39 per cent among unskilled and semi-skilled.

The main characteristic of the sample was their poor housing. Of those we interviewed, 73 per cent were shown in the register as coming from council housing flats, 18 per cent were direct registrars, 4 per cent GLC tenants and 5 per cent borough council tenants. When we interviewed them, we found that the overwhelming majority - four out of five - were living in privately rented property. Altogether 63 per cent of the sample were living in a dwelling shared with at least one other household and a further 4 per cent were living with relatives in the same household but would have preferred to be on their own. Other indices tell much the same story. For instance, 43 per cent shared their WC, with at least one other household. Twenty per cent shared the bath they used and 37 per cent had no bath at all. Of the households with three or more members, nearly half had only one bedroom. Most households had their own kitchen facilities, however; only 5 per cent shared a kitchen with another household.

Attitudes to moving

Twenty nine per cent of those interviewed had already been offered a job and home in a new or expanding town, but had not taken up the offer. Of these, nearly two-thirds had had only one offer, and none more than three. Most of the offers had been for expanding towns like Banbury, Swindon or Huntingdon, though several

were for new towns such as Baddlesley or Harlow. No particular sort of applicant seems to have received more offers than any other, except possibly GLC and Council tenants - 24 per cent of those who had received offers were GLC or Council tenants, against 8 per cent in the whole sample. Nearly half the offers made were turned down because the pay was lower than present wages. Most seemed to accept that pay 'in the country' would be lower than in London, but the offers were often less than they considered a 'living wage'. Other reasons for not taking up an offer were that they did not like the job or it was unsuitable; that they did not like the houses or the 'look of the place'; that the town in question was too far from London; or that the time lag between starting the job and getting a house would have been too large. The latter reason was cited by nearly one man out of five and was the source of some bitterness.

As well as asking the 29 who had earlier offers about their reasons for not taking them up, we asked everybody about the things they thought would enter into their decision to accept or reject a particular offer in the future (table C21). The job is clearly the most important criterion. Though housing is the second most frequently cited, it is an indication of present housing need that no more than a quarter were 'choosy' enough about their housing to regard it as a possible reason for rejecting an offer. 'I'd take it whatever it is', said one man, 'It's just the house that matters'. Apart from the few people who mentioned schools, aspects of the new town itself apart from housing were little mentioned. Of the five who mentioned the waiting period for a house, four had a previous offer, so this is apparently a complication which does not usually occur to people until they have experienced it. The 9 per cent who said they would not accept an offer too far from London because they expected to keep their present job represent a misunderstanding of the scheme altogether: they had no intention of moving further than commuting distance. The 22 per cent who said that distance from London would be a deciding factor because of family and other ties (it was mainly parents and other relatives) had varying definitions of 'too far'. Some really wanted a suburban estate; others meant that they wanted to be within reasonable travelling distance from London. 'The wife's got her mother here, but so long as we're within a half day's journey, I'd go anywhere'.

This evidence of ties to the London area is of course relevant to Ipswich. Two-thirds of the sample said they would consider going to Ipswich. Most of the remainder thought the town too far from London; the rest were interested only in moving to a particular town or region. There were no differences between the three occupational groups in their attitudes to Ipswich, and the only difference in how they would view a particular offer that might be made was that a quarter of the manual workers (both skilled and unskilled), but no non-manual workers, mentioned family and other ties in London.

Obviously most of the 188 people are really concerned about getting a new home. Some will leave London without much enthusiasm, the move seen as the price for the home. But how many? We asked people whether, if they 'could really choose', they would prefer to live in London or in a new or expanding town. A quarter said they treasured London, the remaining three-quarters a new community. To get an idea of what they valued about their present life, we asked a further question - 'About your present life here, what are the main things you and your wife like about it?'. People usually interpreted this in terms of their present district rather than London. Their answers are shown in table C22. Between a quarter and a third had little to say in favour

Q21 Reason for Accepting or Rejecting a Future Offer of a Job and House in a New or Expanding Town – 155 Sample*

Job might be of work in line with present position, and salary wages	54%
Desirability of particular house	26%
Town not too far from London because:	
(a) Family and other ties in London	22%
(b) Expect to keep present job in London	9%
Desire for a particular town or region	13%
Believe no good provision for children	7%
Length of time between taking up job and obtaining housing	5%
Would accept any offer	6%
Total number	99

* Totals add to more than 100% because some people gave more than one reason

Q22 Main 'likes' about Present Life in London – 155 Sample*

Nothing	20%
Accessibility and variety of services and amenities (e.g. shops, entertainment, parks, schools, work)	48%
Relatives, friends or neighbours, like neighbourhood, 'home and loved here'	34%
Physical aspects of district (e.g. quiet, pleasant surroundings, pleasant outlook)	17%
Availability of work, good wages	6%
Total number	99

* The total is more than 100% because some people mentioned more than one thing

Q23 Main 'dislikes' about Present Life in London – 155 Sample*

Nothing	3%
Hoarding (overcrowded, sharing, no privacy, lack of essential physical amenities)	72%
Physical aspects of district (e.g. noise, overcrowded, 'closed-in', 'claustrophobic')	37%
Social aspects of district (slavery, discrimination, bad neighbour)	26%
Lack of facilities and amenities (e.g. shops, public transport)	6%
Total number	99

* The total is more than 100% because some people mentioned more than one thing

of their present district. The answers of the others indicate the qualities of their present life that should be provided as far as possible in their new community. What they say tallies closely with the criticisms of their new life made by migrants to new and expanding towns: (1) the main feature that is valued is the accessibility – and variety – of amenities and services of various kinds. The second most important is a set of 'social' qualities, namely the presence of relatives, friends or neighbours. And the third is certain physical aspects of their present locality.

Thus to carry over to the new life the advantages of their present one, the plan would ideally need to provide as great a variety of shops and other amenities as in their London district (with a transport system that gave equal accessibility); arrange for friends and relatives to accompany them if they wanted to (this is examined later); and design an environment that satisfied their rather vague criteria of 'pleasantness'.

We also asked the converse question – what did they most dislike about their present life (Table Q23). The table confirms again that most 155 people are pre-occupied above all with their housing, though a third complained about the physical character of their locality and a quarter about the social. A few took the opposite view from those who value the variety and accessibility of amenities in London: these were all living in the suburbs.

Housing needs

It was quite clear that most people wanted a house when they moved. We asked them to choose between house, maisonette and flat and the proportions were 23 per cent, 3 per cent and 4 per cent respectively. There was a suggestion that professional, managerial and clerical people might be more willing to take a flat – 19 per cent of them said they would prefer one, compared with 5 per cent of the manual workers. We asked whether people would be willing to take – or consider – a flat or maisonette 'at the beginning, on the understanding that you could move to a house later?'. There was some suspicion about the proposal, a few people rejecting it on the grounds that 'you couldn't trust them to move you later' and others saying 'I should want it in writing'. But on the whole, the response was encouraging, even when one allowed for the fact that many families would not be suitable for a flat and that others might well refuse one when it came to the point. Only 12 per cent were not willing even to consider a flat or maisonette; 65 per cent said that they would be willing to take one, 12 per cent said that they would consider it, another 11 per cent (all manual workers) that they would take or consider 'only a maisonette'.

These answers suggest that at least some families would be willing to start off in smaller dwellings (in the form of flats or maisonettes). Although a majority of people – 67 per cent – said they wanted three bedrooms, a third – 34 per cent – said two, and 5 per cent one. Of the families whose first choice was a house and who wanted one or two bedrooms, four-fifths said they would be willing to take a flat at first and only one was unwilling even to consider a flat or maisonette.

Of the 155 sample, a quarter (39 per cent) said they would want to buy their new house. The proportions in different classes were:

Non-manual	31%
Skilled manual	30%
Semi-skilled and unskilled	18%

We also asked if people might want to buy a house later on. Of those who would start as tenants, 62 per cent said they would like to buy later. Among those who would start by renting, 82 per cent of non-manual workers said they would buy later, 80 per cent of skilled manual and 66 per cent of semi-skilled and unskilled. If one adds the people who want to buy initially to those who might buy later, this gives a total potential demand of 72 per cent in the whole sample, it was 67 per cent among non-manual people, 72 per cent among skilled manual, 66 per cent among semi-skilled and unskilled.

1 See Sir Ivor Lewis, Milford, P., East Kilbride and Greenock, *Town Planning Review* Vol XXXV, No. 4, p. 315.

Not all of these could necessarily afford to buy their own home. If the personal incomes of 188 people remained the same after the move (as we have said, they might well not), and if a gross personal income of over £25 a week was needed to buy a new house in Ipswich, then about a quarter of the ISS sample (24 per cent) would be able to afford it. The proportions in different occupational groups would be: non-manual 37 per cent, skilled manual 27 per cent, semi and unskilled 12 per cent.

Those who said they would rent when they moved were also asked: 'If you had the choice between a new house or flat in a completely new district at say £4 a week and an older council house or flat nearer the town centre at say £2 a week, which do you think you would choose?' About one in five (18 per cent) said they would choose the older and cheaper property, 60 per cent the newer and dearer; 12 per cent did not know which they would prefer.

Relatives and friends

Informants were asked whether their parents or parents-in-law would like (or might possibly like) to move to the same town as themselves. Some did not have parents or parents-in-law alive. Of the rest, 14 said their parents or parents-in-law would like to go, and another 20 said they might, amounting to a third of the sample altogether. This response is in line with the experience of the new towns, many of which have waiting lists of 18 months or two years for the retired parents of tenants.⁴ It suggests that, right from the beginning, the Ipswich expansion should build something like 15 per cent of its dwellings for such parents. It seems from the ISS survey that London's housing 'late would benefit if the parents moved – of the 14 described as wanting to go, seven were Council tenants and three on housing lists.

We also asked about other relatives and friends who might like to move to the same town'. Forty-five people mentioned one or more, and they referred to 63 households altogether. Thus, if this sample is any guide, such migrants might take with them (as well as the parents already mentioned) half as many other households, as long as work could be found for the breadwinners. Brothers and sisters (of husband or wife) figured most. They accounted for 66 per cent of the households mentioned, friends for 33 per cent and other relatives 11 per cent. Twenty-nine per cent of the households were Council tenants and 36 per cent were on housing lists. Sixty-two per cent of the heads of these households were under 30, compared with 30 per cent in the sample. The reason is obvious, as people told us themselves, the potential migrants among their friends and relatives were largely young couples wanting somewhere to live. Informants in their forties often remarked: 'Most of the people of our own age have settled down somewhere by now'.

Since our reason for asking about these relatives and friends was the hope that they might include proportionally more middle-aged people and thus help to give the migrant population a more 'balanced' age-structure, the response seems disappointing. But there could be a selective scheme, giving preference to the middle-aged. If this were done it would not only help to create a more balanced age-structure; it would also allow at least some people to maintain social ties they value.

Leisure

We asked a series of questions about the leisure activities – outside the home – of both our informant and other members of his household. First we asked about the 'main thing' they did in their leisure time; the answers for husbands and wives are shown in table C24. The question was 'open', with no guidance about possible answers, so some 'leisure activities' may well have been omitted. Even so it is striking that a quarter of the husbands and half the wives said they did 'nothing' outside the home; these were mainly couples with children. The differences between the sexes are marked. The men engaged in 'spectator' and 'participant' sports and in 'outdoor recreation' (mainly motorcycling). The women not only more often did nothing at all; what they did was largely confined to 'walking about', taking their young children to the park, visiting friends or relatives. Where it was relevant, people were also asked how long it usually took them to get to their main leisure activity. We excluded not only those who said 'nothing' but also 'mooching' and 'walking', unless there was one particularly favoured destination. For both men and women, the activities were fairly localised. Among both husbands and wives about half travelled 15 minutes or less, altogether three-quarters travelled half an hour or less. Since the wives particularly seemed to go out so little anyway, this underlines the importance of making parks and social facilities accessible. If they are less accessible in their new community than in London, there will presumably be still less participation outside the home.

People were asked specifically about recreational facilities they would like to see in a new or expanding town. The views of husbands and wives are shown in table C25. Again a third of the women said about a sixth of the men had no suggestions to offer. Again, too, there were other variations between the sexes – for instance, men showing more interest in spectator sports (like football). Though we cannot know whether people would in fact use the facilities they mention, these answers suggest that the main recreational needs are seen as various facilities for participant sports (swimming was mentioned most often), for spectator sports (like professional football (for men), and for some 'entertainment' (mainly pubs, dance halls and 'social clubs'). In addition, the demands on behalf of children are notable – sports facilities for the older and playgrounds for the younger.

The sample of employees

Now we turn to the small supplementary study of people moving with their firm. W. H. Smith's are moving their wholesale warehouse to Swindon, taking with them about 200 of the present staff of 1,000. The 200 are people who have chosen to go: through the co-operation of the firm, we were able to interview a sample of 53 of these before they left London. The interviews were arranged by the firm and carried out by us on the firm's premises. Of those approached for interview, six refused. Obviously these 53 employees of one migrating firm cannot be taken as representative of the people who move to new or expanding towns with their employer. Other firms have different occupational structures, handle their moving differently, and vary in other ways. The hope is simply that, in looking at this sample, we may get another perspective from that of the ISS sample alone.

The people at Smith's were different in many ways from the ISS sample. First, they included five single

⁴ See, for instance, Nicholson, J. H., *New Communities in Britain* p. 64 and note 61.

**C24 Main Leisure Activity of Households and Wives
(Outside the Home) – ISS Sample**

	Husbands	Wives
Spectator sports (e.g. football, cricket)	14%	2%
Participant sports (e.g. swimming, bowling, golf, tennis)	18%	1%
Urban recreation (e.g. walking about, going to parks)	7%	10%
Culture and education (e.g. fishing, camping, motorcycling, fishing)	14%	4%
Entertainment (e.g. cinema, dining, bingo, pub)	8%	8%
Cultural (e.g. evening classes, church activities, women's club, hobbies)	4%	1%
Visiting friends and relatives	10%	13%
Working*	28%	31%
Total	100%	100%
Number	50	50

C25 Recreational Needs of New or Expanding Young – ISS Sample*

	Husbands	Wives
Spectator sports (e.g. football, cricket)	21%	5%
Participant sports (e.g. swimming, bowling, golf, tennis)	30%	22%
Urban recreation (e.g. cinema, dining, bingo, pub)	12%	18%
Cultural (e.g. evening classes, church activities, internet, clubs, hobbies)	8%	8%
Sports and recreation facilities for children	8%	8%
Playgrounds etc. for young children	10%	18%
None	16%	30%
Total number	50	50

* The total is more than 100% because some people mentioned more than one thing.

C26 Main Reasons for Moving to Sweden – Smith's Sample

	All Smith's sample	Smith's married men only
Did not want to give up job	60%	80%
Chance of better housing	20%	27%
Chance to leave London	10%	13%
Total	100%	100%
Number	50	47

people and one woman (married, with a daughter of 17); it will be remembered that such people were deliberately excluded from the ISS sample and, in making direct comparisons between the two samples in the following paragraphs, they have usually been dropped from the Smith's sample also. The Smith's people came from a much wider area than the northern and eastern Greater London boroughs. Less than a third lived in inner London (the former County) compared with nearly half the ISS people. Over one in ten of them lived outside the GLC area altogether – they commuted from places like Dorking and Chislehurst. The occupational structure of the warehouse, again, is nothing like that of the ISS sample. The 53 people included three managers, 28 clerks, and 50 manual workers (18 'peckers' and 'week-housemen', classified as 'semi-skilled' by the Registrar General, and 12 supervisors, classified as 'skilled manual'). Compared with ISS people, the 47 married men among the Smith's workers included more non-manual workers (42 per cent against 18 per cent), less skilled (24 per cent against 51 per cent), and as many semi-skilled or unskilled (34 per cent against 33 per cent).

The Smith's sample was older and their households were markedly different: excluding the single people and the married women, 38 per cent were married couples without children, compared with 15 per cent in the ISS sample, and only 49 per cent had children under 14, compared with 81 per cent.

The current incomes of the Smith's sample were rather higher than those of the ISS people: 45 per cent of the ISS people had a gross household income of over £26 compared with 63 per cent of the married men among the Smith's employees. There are two probable reasons for the difference. First, the Smith's sample includes more older men, whose incomes reflect their seniority. Secondly, these incomes include substantial payments for overtime. Average earnings will be lower in Sweden; many men will actually get higher hourly rates but there will be virtually no overtime.

The income differences compared with the ISS people are not markedly reflected in car ownership – 60 per cent of the married men at Smith's had a car, against 82 per cent of the ISS sample. But on house ownership – as on housing in general – there was a big difference between the two samples. None of the ISS people owned their home, though two lived with relatives who did; nearly half the married men at Smith's – 43 per cent – owned their homes. Similarly, only 34 per cent shared their dwelling with another household, compared with 63 per cent of the ISS sample. And whereas nearly half the ISS households with three or more members had only one bedroom, the proportion of the Smith's was only one in ten.

A different attitude to moving

This difference in housing is the main thing that distinguishes the two samples, and is exactly what one would have expected; the ISS people are in general worse housed than those who move out with their employers. The difference is reflected in people's reasons for going. With the ISS sample, housing is paramount. The 'main reason' for going to Sweden given by the Smith's people is shown in table C26. The principal motive was to continue working for the company. The people who gave this reason seemed to be of two main kinds – a few were younger men with managerial or supervisory posts who thought they had good prospects with the firm, and the rest were men who were reluctant

to lose their pension rights and other advantages of long service. 'I've been with the firm 18 years,' said a 33 year old supervisor. 'I don't want to give up the benefits I get from my length of service. I've built up quite a respectable pension, for instance, and I get an extra week's holiday.' Those who gave housing as their main reason – there were 13 of them, all married men – were also of two main kinds. Nine were badly housed in London in rented property; their houses were, according to their descriptions, overcrowded and in poor condition. The other four were going to Swindon so that they could buy rather than rent, or could buy a better house than they now owned.

People were asked about the 'advantages', to themselves and their family, of making the move. In analysing their answers we excluded their 'main reason' for going, though some naturally repeated it; table C27 therefore reflects what people saw as the subsidiary advantages of the move. Unlike the ISS sample, most were not badly housed, as we have shown, and all employees had been faced with the choice of moving or staying in London. The people we saw were the minority who chose to go. Having made their decision, they must have been disposed to find all the support they could for it. This may explain the high proportions saying that they positively wanted to leave London.

Nevertheless, people's feelings against London in general and the journey to work in particular often seemed strong. 'In London you get frustrated, travelling backwards and forwards,' said one man whose journey to work was over an hour each way. 'Life will be quieter in Swindon and I'll be able to spend more time with my family.' Over a quarter spoke of the benefits to their children. Those who mentioned 'housing' as an advantage explained that they could now get a better house ('A house costing £3,600 near Swindon would be £8,000 or £7,000 in London,' said one man), or a bungalow rather than a house, or said they would now be able to buy rather than rent. Only two people said there were no advantages in moving.

On balance the Smith's employees seem rather more favourably inclined to the move to Swindon and away from London, possibly for the reasons given earlier. We have said that a quarter of the ISS sample would really prefer to stay in Greater London if they could get decent housing; among the Smith's sample seven people (16 per cent. of the married men) said this – six of the seven were among the nine whose main reason for going was to get out of poor housing.

What did the Smith's employees think would be the disadvantages of their move to Swindon? Table C28 gives their answers. Like some of the ISS sample, many were concerned about leaving relatives behind. 'It will mean leaving the family – that's the only thing,' said one man. 'If anything went wrong we wouldn't be able to pop round the corner and say "Hi! up as out".' And another: 'Leaving all your friends, your social life, your relatives mainly. You're sort of torn between the two.' Others, again like ISS people, feared they would miss the variety and choice that London offers, and others – a smaller minority – that the move would be unsettling.

Housing at Swindon

The Smith's sample had in the main already made arrangements about their new homes. Of the married men, 88 per cent. had arranged to buy a house – four-fifths of them privately and one-fifth from the Swindon Corporation; this compares with 43 per cent. owning their present home. Of the remaining 20 men, four intended to buy

C27 'Advantages' to Self and Family of Moving to Swindon – Smith's Sample*

	All Smith's sample	Smith's married men only
Away from London – 'better pace', 'healthier', 'in the country'	63%	68%
Less travelling to work, easier travelling generally	36%	42%
Better for children, better schools	26%	32%
Better housing	24%	25%
Better prospects, better career/job	13%	14%
Other advantages	3%	8%
No advantages	4%	0%
Total number	83	47

* Totals exceed 100% because some people (on first move) mentioned more than one 'advantage'.

C28 'Disadvantages' to Self and Family of Moving to Swindon – Smith's Sample*

	All Smith's sample	Smith's married men only
Leaving relatives behind	43%	40%
Will miss choice, variety, facilities of London	31%	21%
Change will separate family members, including children at school	10%	10%
Possible future shortage of work, less choice of jobs	4%	4%
Other disadvantages	4%	4%
No disadvantages	26%	23%
Total number	83	47

* Totals exceed 100% because some people (on first move) mentioned more than one 'disadvantage'.

C29 Main Leisure Activity of Households and Wives (Outside the home*, married men only) – Smith's Sample

	Household	Wives
Spectator sports (e.g. football, cricket)	8%	3%
Participate sports (e.g. swimming, bowling, golf, tennis)	13%	—
Urban recreation (e.g. walking about, going to park)	9%	2%
Outdoor recreation (e.g. hiking, camping, motorcycling, fishing)	24%	14%
Domestication (e.g. cleaning, sewing, baking, painting)	6%	9%
Cultural (e.g. evening classes, church activities, indoor clubs, hobbies)	30%	21%
Visiting friends or relatives	—	8%
'Nothing'	10%	34%
Total	100%	100%
Number	47	47

within a year – they wanted to settle in first and look around – and another eight would like to buy later. Thus only eight of the 47 married men – 17 per cent. – expected to go on renting their homes: these were mainly lower-paid or older people.

Many of the privately-purchased houses were not in Swindon at all, but either at the very periphery or in villages within five or six miles, and many of these houses were bungalows. Of the married men, 18 per cent. were going into a flat (all Corporation tenants), 23 per cent. were getting a bungalow (all private purchasers) and 58 per cent. a house (some tenants, some purchasers). Of the men going into flats, five said they would have preferred a house.

Leisure differences

The questions put to the ISS sample about leisure were also put to the Smith's sample (table C29). There were some striking contrasts between the two samples. More of the Smith's men engaged in what we classified as 'cultural' activities; none of them, compared with one in ten of the ISS men, said their main leisure activity was visiting friends or relatives; and less of them said they did nothing. Similarly, less of the Smith's wives 'walked about' or 'went to the park' (2 per cent. against 16 per cent. of ISS wives), while more went in for 'cultural' activities (21 per cent. against 1 per cent.). These leisure activities seemed about as local as with the ISS people; the proportion within 15 minutes were 36 per cent. for men (against 42 per cent. for ISS husbands) and 42 percent for wives (against 50 per cent.).

People's views about future 'recreational needs' varied also, possibly because some Smith's workers answered in terms of what they knew Swindon already had. The main differences were that more Smith's people, particularly wives, mentioned 'cultural' needs, and no Smith's people mentioned the recreational needs of children (the explanation is perhaps partly that the ISS people, having less to suggest anyway, turned to their children's needs for something to say).

Conclusion

Although the Smith's sample cannot be regarded as 'representative' of people moving with a firm, the interviews suggest that there are likely to be some important differences between people recruited in the two ways. Housing is one example. We suggested earlier that perhaps a quarter of the ISS sample might be able to buy their home. But well over half the Smith's employees would be buying their home after the move, and more hoped to do so later. In other words, the interviews suggest that people who move with their firm are more likely to own their home already or be in a position to buy than are people on the ISS register. The demand for houses for sale will largely depend on the proportions recruited in the two different ways and on what kind of employees move with their firm.

The Development Corporation will, however, have to make some general decisions on this without knowing the answers to these questions. On the basis of what is known so far, it would seem that the initial proportion of homes for sale should be something like a third, with the opportunity of increasing this later if the demand warrants.

Two further points on housing. Many who own their homes already will, like the Smith's migrants to Swindon, want to buy homes at relatively low density; if these

are not provided within the expansion area, they are likely to seek them in villages nearby. And the owner-occupiers who move are, clearly, less likely than ISS people to be prepared to consider sorting off in a flat.

Finally, there is the general point that people moving with their employer will be different in their ages and in other important ways from ISS applicants. Firms obviously vary in their labour structure and this can have social consequences. We imagine that at the beginning the Development Corporation will have little choice about firms that move: it will largely take what it can get. But at a later stage there may be some choice and, as well as economic and industrial criteria, such questions as a firm's 'seniority' privileges, its pension scheme and the age structure of its labour force generally could play a part in selecting one firm as against another.

Appendix D Housing

I Existing stock

Objects

The purpose of this study was to assess the housing needs and conditions of the present Ipswich population, so that the housing programme for the expansion areas could have regard to the character of the existing stock of housing, and so that estimates could be made of the need for renewal and improvement in the existing town during the period of planned expansion. Much of the data presented in this appendix is in the nature of background information that has not been used in the preparation of the draft Basic Plan but will be helpful to the County Borough Council and the Development Corporation in carrying out the expansion.

Method

The housing stock was classified by age and layout into nine broad types:

<i>pre-1874</i>	
A <i>alleys</i>	narrow-fronted terraces at about 30 dwellings per acre net.
B <i>terraces</i>	with small front gardens, at about 30 dwellings per acre net.
C <i>mixed</i>	terraces, semi-detached and detached, sometimes with later infilling, from six to fifteen dwellings per acre net.
D <i>villas</i>	detached or semi-detached, with large gardens, up to three dwellings per acre net.
<i>inter-war</i>	
E <i>private estates</i>	mostly semi-detached, from six to ten dwellings per acre net.
H <i>council estates</i>	terraces and semi-detached at about ten dwellings per acre net.
<i>post-war</i>	
F <i>private estates</i>	mostly semi-detached, from six to ten dwellings per acre net.
I <i>council estates</i>	terraces and semi-detached, some flats, seven to 13 dwellings per acre net.
<i>inter-war and post-war</i>	
G <i>villas</i>	detached, up to three dwellings per acre net.

The classification was made by visual observation, compared with age-of-buildings and density maps, and

checked by further observation. The distribution of the various types is shown in figure 43 (chapter 7).

Information was obtained from the 1961 Census for each enumeration district (ED). These were grouped to form 'Housing Districts'. Where more than one type occurred in an ED, it was classified according to the predominant type, but Council houses were transferred where necessary from one housing district to another because they were separately listed in the Census. The mixture of housing types within some EDs accounts for apparent anomalies in the figures—for example, some dwellings classified as post-war have no fixed bath; these are almost certainly older dwellings in predominantly post-war areas. Types F and G—post-war private estates and 20th century villas—were particularly difficult to isolate, much post-war development up to 1951 was infilling in predominantly inter-war areas, and many of the villas were among inter-war private estates. Figures for these two types should therefore be regarded with caution. It should also be noted when comparing percentages that the total number of dwellings in type D—19th century villas—is very small.

The central area was excluded from the classification because there were only small pockets of housing mixed with other land uses, and much of it has changed since 1961. But it is included in the figures for the whole town.

The data from the full Census for each ED consisted of the number of dwellings of each size (by number of rooms), tenure (by households, rooms, and persons), facilities (hot water tap, bath and WC), the number of shared dwellings, and the number of households consisting of one or two people living alone of whom at least one was over 65 years of age.

From the Census ten per cent sample tables data was obtained on mobility, age, and social class.

The table on housing accommodation was derived from the published Census tables. Plans of typical houses, current market values and private rents was obtained from a local estate agent. Similar information on Council property came from the Ipswich Borough Council.

Accommodation standards

Table D1 gives an analysis of households in different tenures according to a simplified standard of accommodation, i.e. the relationship between the number of people in the household and the number of rooms they occupy. It shows that there is very little serious overcrowding, the highest incidence occurring in rented furnished accommodation, where 12 per cent of the total in this category (including all) are below the standard adopted. The closest fit occurs in Council property. On the other hand, there appears to be a high degree of 'under-occupancy' in owner-occupied houses where 43 per cent are above the standard. 'Under-occupancy' is greatest among one and two person households, many of them obviously elderly people living in a family house after their children have left home; quite a number of these houses are in the older 19th century terraces which, although having four or five rooms, are in reality very small, and are only tolerable because they are 'under-occupied'.

Housing types

Table D2 analyses each housing type according to the number of rooms, household composition, tenure, amenities, and values.

It is noticeable that over half the small dwellings with one to three rooms belong to the Council, and since 1951 they have built a higher proportion of these than previously, to house elderly people from the older Council estates and from slum clearance areas.

The older men have the smallest households, the largest proportion of elderly and retired people, and the smallest proportion of children. The Council areas have the largest, youngest, households, and the biggest proportions of unskilled and semi-skilled workers.

Changes in tenure have been taking place continuously since 1951 and the figures for owner-occupation are likely to be higher now, particularly in the older houses.

The table shows that 19 per cent. of all dwellings had no fixed bath and 32 per cent. no hot water tap. Since 1951 these figures will have fallen slightly, particularly in Council property, where hot-water appliances purchased by tenants are installed free of charge by the Council. By December 1965 approximately 26 per cent of inter-war Council dwellings were without hot water taps.

Environment

This has been assessed visually, taking account of garages and parking provision, play-space for children, and planting. Most children play in private gardens, and only in categories A and B do these seem to be inadequate. Planting varies a great deal, but many areas could be greatly improved by trees.

The following is an approximate estimate of the proportion of homes with garages. There is very little off-street space for casual parking in any of the residential areas.

A	B	C	D	E	F	G	H	I
Nil	Nil	Verbs	Verbs	75%	100%	100%	5%	25%

Mobility

Table D3 gives a measure of mobility—the number of married men who moved to their present address during the year before the Census as a percentage of the total number of families in each housing type. (The ideal would have been an analysis of all household moves classified by type of household, but this was not obtainable.) The figures reflect only joint moves by husband and wife; they do not include moves of single people or of other households without a married couple.

The figures for post-war private houses—types F and G—cannot be directly compared with the remainder because they include moves into newly-built houses. In the Council sector moves into new houses are shown separately, but it was not possible to do this in the private sector. Mobility in type A will have been affected by slum clearance.

D3

	A	B	C	D	E	F	G	H	I	Total
	%	%	%	%	%	%	%	%	%	%
Moved within (private)	57	57	62	73	47	90	78	61	35	68
Moved from outside (private)	28	30	42	28	38	80	100	66	28	37
Moved into new Council houses										— 52
Adjusted total	108	87	120	171	83	180	178	87	70	102

The table shows that, apart from types F and G, there is the greatest mobility in the older areas, especially pre-1914 villas (which contain a relatively high proportion of furnished accommodation) and the least on the inter-war end Council estates.

II Accommodation standards

Assumptions for newcomers up to 1951 (used in table 11.1—volume 1)

1 person households

All with one bedroom.

2 person households

Three quarters of newly married couples in family houses, remainder in small flats.

Middle aged couples in small dwellings, a fairly high proportion being bungalows.

Old couples in small dwellings.

3 person households

All young married couples with one child in family houses.

One-third of middle-aged couples with one child or ancestor in family houses, two-thirds in small dwellings.

Others in small dwellings.

Larger households

All in family houses.

Note: Small dwellings are one or two bedroom flats or bungalows, family houses mostly have three or more bedrooms.

Long-term assumptions for whole of expanded town

1 person households

All young and middle aged single people in small dwellings.

Ninety per cent. of old people in small dwellings, ten per cent. in family houses.

2 person households

Three-quarters of newly married couples in family houses, remainder in small flats.

Seventy per cent. of middle aged married people whose children have left home in family houses, 30 per cent. in small dwellings.

Thirty per cent. of old married couples in family houses, 70 per cent. in small dwellings.

3 person households

All young married couples with one child in family houses.

Four-fifths of middle-aged couples with one child or ancestor in family houses, one-fifth in small dwellings.

Widows or widowers with grown-up children in family houses, old couples living with a friend or relative in small dwellings.

Larger households

All in family houses.

Amount of medicine	Persons in household	Racial
Persons in household	Standard	Standard
1	2	3
1	Below	Below
2	Standard	Standard
3	Above	Above
4	Below	Below
5	Standard	Standard
6	Above	Above
7	Below	Below
8	Standard	Standard
9	Above	Above
10	Below	Below
11	Standard	Standard
12	Above	Above
13	Below	Below
14	Standard	Standard
15	Above	Above
16	Below	Below
17	Standard	Standard
18	Above	Above
19	Below	Below
20	Standard	Standard
21	Above	Above
22	Below	Below
23	Standard	Standard
24	Above	Above
25	Below	Below
26	Standard	Standard
27	Above	Above
28	Below	Below
29	Standard	Standard
30	Above	Above
31	Below	Below
32	Standard	Standard
33	Above	Above
34	Below	Below
35	Standard	Standard
36	Above	Above
37	Below	Below
38	Standard	Standard
39	Above	Above
40	Below	Below
41	Standard	Standard
42	Above	Above
43	Below	Below
44	Standard	Standard
45	Above	Above
46	Below	Below
47	Standard	Standard
48	Above	Above
49	Below	Below
50	Standard	Standard
51	Above	Above
52	Below	Below
53	Standard	Standard
54	Above	Above
55	Below	Below
56	Standard	Standard
57	Above	Above
58	Below	Below
59	Standard	Standard
60	Above	Above
61	Below	Below
62	Standard	Standard
63	Above	Above
64	Below	Below
65	Standard	Standard
66	Above	Above
67	Below	Below
68	Standard	Standard
69	Above	Above
70	Below	Below
71	Standard	Standard
72	Above	Above
73	Below	Below
74	Standard	Standard
75	Above	Above
76	Below	Below
77	Standard	Standard
78	Above	Above
79	Below	Below
80	Standard	Standard
81	Above	Above
82	Below	Below
83	Standard	Standard
84	Above	Above
85	Below	Below
86	Standard	Standard
87	Above	Above
88	Below	Below
89	Standard	Standard
90	Above	Above
91	Below	Below
92	Standard	Standard
93	Above	Above
94	Below	Below
95	Standard	Standard
96	Above	Above
97	Below	Below
98	Standard	Standard
99	Above	Above
100	Below	Below

For the Census statistics are rounded as a whole if the family normally needs their medicine.

²³ Australia of Nations and State Sovereignty in Areas Profoundly and Completely Controlled of such House Time (1987) account for Nations and Nations)

SPACE	Densities		Pre-1974 houses		Pre-1974 mixed		Pre-1974 villas		Late-1970s		Post-1974 villas		Inter-war Council		Total						
	A	%	B	%	C	%	D	%	E	%	F	%	H	%	I	%					
No. of areas	1-2	8	127	4	829	6	65	18	654	5	207	8	88	6	433	11	1,352	20	2,877	9	
A	4	442	21	318	12	1,826	17	41	10	843	12	450	22	94	6	1,051	30	268	13	8,886	18
C	5	1,304	61	2,118	65	2,068	53	21	6	4,983	69	1,315	62	488	40	2,051	40	3,708	60	21,343	97
4 new areas	343	12	624	19	2,172	24	366	70	1,018	14	432	18	370	25	184	5	232	4	6,347	11	
Total dwellings	2,264	3,264	3,162	433	5,145		433	7,253	2,923		1,550	1,8	1,1	1,1	1,2	8,328		37,436			
Residing per person	1.7	1.8	1.8	1.6	1.6	1.7	1.7	1.7	1.8	1.8	1.8	1.8	1.1	1.1	1.2	1.2		1.95			
PEOPLE																					
Average household size	2.9	2.7	2.7	2.7	2.7	2.7	2.6	2.6	2.6	2.6	2.6	2.6	2.9	2.9	2.9	2.9		3.06			
Second class (unimproved suburban) - defined	34	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33		36			
Spill-out and excess	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61		59			
Professional and managerial	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6		6			
Age group: Working	67	68	67	68	67	68	68	68	68	68	68	68	68	68	68	68		57			
Retired	12	15	12	15	12	15	13	13	13	13	13	13	13	13	13	13		4			
Family size	20	17	21	21	21	21	21	21	24	26	33	33	27	27	27	27		18			
Single person households (over 16 years)	218	12	416	12	1,038	11	43	11	415	8	632	6	72	7	132	5	376	6	3,190	84	
2 person households with one or both representing age	208	13	238	17	1,216	14	43	14	267	11	256	10	341	13	330	6	347	8	4,558	11	
TECHNICAL																					
Owner-occupied	913	49	2,802	62	5,825	52	349	82	987	82	2,138	87	770	72	40		11	18,226	43		
Rented - Council	7	—	—	—	19	—	8	—	3	—	0	—	3	—	4,890	58	6,361	80	13,460	28	
Private furnished	283	11	100	3	876	7	49	12	320	3	40	2	70	7	6		3	1,478	4		
Private unfurnished	1,022	48	1,818	33	2,813		34	18	953	12	188	8	174	18	12		2	6,305	17		
GPAs (e.g. service tenancies)	83	4	32	2	262		3	—	383	3	100	8	48	5	38		12	982	2		
Total households	2,239	3,182	3,162		5,118		405		7,195		2,441	1,069	4,193		6,360		27,242				
APPROPRIATE																					
Unimproved Council	1,389	61	1,433	45	3,338	28	768		329	4	47	3	70	7	10		7	6,080	18		
Where no bed-rooming	1,813	67	1,895	55	4,212	45	101		1,276	16	133	6	182	16	2,404	57	161	3	21,058	32	
Where no rooming	63		23				1		60		8		26		24		68		815		
DOLLARS AND PENCE																					
90% of bed price	£1,000		£1,500-2,500		£1,500-6,000		£5,000-10,000		£3,250-8,000		£3,250-8,000		£4,500		—		—				
Bed price	15/-		15/-		15/-		15/-		15/-		15/-		15/-		15/-		15/-				
Bed price (with 3 bedrooms)	£2-3		£2 10s-£4		£4-£6		£6-£8		£4-£6		£4-£6		£4-£6		£4-£6		£4-£6				
Count	—		—		—		—		—		—		—		—		—		£1 10s-£1 14s	£2-£2 10	

Note: 1. Hours is observed area and calculated in the total but not in any of the categories.
2. The five factors in rows A, C, D, E, and G shown as Causal-related but probably have occurred in the Causal-event domain.

Appendix E Employment and industry

The purpose of this appendix is to provide data in support of the estimates of the total labour force and its distribution given in chapter 4, and the estimates of industrial land requirements given in chapter 12.

I Labour force

Activity rates

From the population projections for the expanding town (appendix B) we can estimate the number of people who will require jobs. This is done by taking the estimated numbers of men and of married and non-married women in each five-year age group and multiplying them by an assumed activity rate for the group. The activity rates used were those given in the Ministry of Labour Gazette (January 1965) for 1960, 1974 and 1990. The results of the calculation are given in table E1.

E1 Estimated Labour Force per 1,000 Population

	1971	1978	1991
Established population			
Males	324	388	387
Females—non-married	68	81	66
unmarried	60	80	66
all	156	194	190
Total	487	443	437
Newcomers			
Males	310	294	309
Females—non-married	35	36	33
married	65	66	101
all	136	134	140
Total	446	425	426

- The national activity rates do not allow for —
- i regional variations,
- ii possible variations due to special circumstances in an expanding town.

The effect of regional variations may be estimated by applying the national rates for 1961 to the Ipswich population in that year. This gives the labour force that would have been expected if Ipswich had national activity rates applied. In table E2 this is compared with the actual labour force recorded in the 1961 Census 10 per cent sample. Activity rates for males in Ipswich were very close to the national average, but those for females (especially married women) were significantly lower. However, the difference was smaller than in 1961, and with the increased opportunities brought by town expansion we can expect it to disappear completely. We have assumed that by 1974 national activity rates for

E2 Comparison of Actual Ipswich Labour Force 1961 with expected Labour Force Based on National Activity Rates

	Actual	Expected
Number		
Males	38,100	38,300
Females—non-married	7,800	8,300
married	6,000	10,200
all	14,800	18,500
Total	50,900	64,100
Per 1,000 population		
Males	307	308
Females—non-married	67	71
married	50	87
all	128	198
Total	433	484

females will apply to Ipswich, and that by 1971 the difference that existed in 1961 will have been halved.

This reduces the activity rate for the established population in 1971 from 457 per 1,000 population (table E1) to 441 per 1,000.

The effect of new town circumstances can be investigated by making a similar calculation for some of the new towns around London. The results are shown in table E3. There is little difference between the actual and expected rates, and this holds true when separate calculations are made for males, married females and non-married females.

E3 Comparison of Actual Activity Rates in Seven New Towns (1961) with expected Activity Rates Based on National Averages

New Town	Residents economically active per 1,000 population	Actual	Expected
Bedford	357	358	
Harlow	423	421	
Hatfield	484	497	
Harlow Harpenden	476	448	
Stevenage	487	428	
Weybridge	483	468	
Bracknell	436	432	

We conclude that no allowance need be made for the special circumstances of an expanding town.

The estimated labour force living in the proposed designated area is shown in table E4.

E4 Supply of Labour from Residents in Proposed Designated Area

	1971	1976	1981
Established population	55,469	61,400	63,100
Newcomers	8,500	30,200	34,600
Total	63,969	91,600	97,700
of whom, aged 15-16	7,680	7,680	8,100

Commuting

In order to estimate the number of people likely to be working in expanded Ipswich, we must subtract from the figures in table E4 the resident labour force commuting out of the town and add the non-resident labour force commuting in.

The Workplace and Residence Tables for the 1961 Census give the following figures for Ipswich County Borough:

Residents economically active	80,000
Resident in area, working elsewhere	- 3,980
Working in area, resident elsewhere	+ 9,400
Jobs in area	95,980

We have to adjust these figures to cover the whole of the proposed designated area.

Applying 1961 activity rates to the estimated 1981 population of 121,000 gives 52,600 economically active residents in the proposed designated area. The number of commuters into and out of the larger area will have been smaller than the numbers into and out of Ipswich because there was more movement between Ipswich and the rest of the proposed designated area than between the latter and the rest of the sub-region. Our estimates for the proposed designated area are:

Residents economically active	52,600
Resident in area, working elsewhere	- 3,000
Working in area, resident elsewhere	+ 8,000
Jobs in area	57,600

In estimating future changes in commuting we have looked at the experience of Swindon. This has had the largest planned expansion to date, is about the same distance from London as Ipswich is, and is also the main centre of a large rural area. We studied changes in daily travel to work between 1951 and 1961 in and out of the combined areas of Swindon and the adjacent Highworth Rural District, where much of the growth in population and employment has taken place. Outward commuting fell slightly but inward commuting increased proportionately more than occupied residents. The figures are given in table E2.

E2 *Commuting into and out of the Combined Area of Swindon M.B. and Highworth R.D.*

	1951	1961
Residents economically active	40,000	80,000
Residents active, working elsewhere	-1,200	-1,200
Moving in area, not into town	+2,400	+4,800
Jobs in area	41,100	83,700

We expect changes in Ipswich to be somewhat different because there are no minor employment centres as close to Swindon as Sawmarket and Fobcote are to Ipswich. This suggests that outward commuting from Ipswich may also increase, though not so rapidly as inward commuting.

Our estimates are:

	1961	1971	1976	1981
Residents economically active	52,600	65,600	81,600	87,700
Residents in area, working elsewhere	-3,700	-4,800	-5,000	-4,000
Working in area, not elsewhere	+8,000	+12,400	+16,300	+20,500
Jobs in area	57,600	73,200	92,900	112,200

These are the estimated numbers of people who will require jobs in the expanded town. In the rest of the appendix the totals for 1976 and 1981 have been rounded to 83,000 and 112,000.

II Jobs

Estimated employment in the proposed designated area in 1966 was 62,000. The net increase required for the expansion is therefore 31,000 by 1976 and a further 19,000 by 1981. We have added another thousand to the estimate for 1976 to allow for the loss of jobs in agriculture in the proposed designated area, as a result both of urban development and of declining employment on the remaining farms. We now have to estimate how much of this additional employment will require land on new industrial estates. As explained in chapter 4 this is done by estimating the numbers in service trades and existing manufacturing plants and subtracting the sum of these from the total new jobs required. This gives the maximum number of jobs required in new manufacturing industry. Provision must be made for this maximum, though some of the jobs may be provided in district offices decentralised from London.

Services

In 1961 there were about 2,900 jobs in service trades for every 10,000 of the resident population in Ipswich. The average for fourteen towns with a population of about a quarter of a million (the size that Ipswich will be approaching in 1981) was 3,000 service workers per 10,000 residents, with a mean deviation of 842. Most of the towns are sub-regional centres with an area of influence similar to that of Ipswich, but a few (e.g. Nottingham and Newcastle on Tyne) provide higher level services for a larger population. The ratio in Swindon was 2,700.

Existing service trades in Ipswich have some spare capacity to cater for the first wave of newcomers, and newly developed services (e.g. district shopping centres) are likely to provide a given level of service with fewer employees. This suggests that the ratio of service workers to population may fall, and we have taken a figure of 2,700 service workers per 10,000 population as a working assumption. This is within the range for the fourteen large towns.

There will of course be an exceptionally large constructional labour force during the years of rapid build-up, but we have assumed that few of these will live permanently in the expanded town.

On the assumed basis, service workers would make up 54 per cent. of the 1981 working population, compared with about 50 per cent. at present. However, this estimate is based on 1961 comparisons and does not take account of the national trend for the proportion of all workers in service trades to increase. Between 1959 and 1964 service employment in Great Britain rose from 54.5 per cent. to 56.8 per cent. of the total labour force. Assuming a somewhat lower rate of increase in Ipswich we esti-

note that service trades will absorb 55 per cent. of the labour force in 1978 and 58 per cent. in 1981 – a return to the present level after a fall in the early years of expansion.

The division between services and manufacturing will then be:

	Total		Increase over 1958	
	1978	1981	1978	1981
Services	82,000	68,900	+18,800	+28,800
Manufacturing	41,000	47,800	+16,800	+22,800

Existing manufacturing industry

As explained in chapter 4 we expect 8,000 of the new jobs required in manufacturing industry to be provided by the expansion of existing plants, 4,000 by 1978 and 2,000 1978–81, leaving 16,000 to be provided in new factories, 12,000 by 1978 and 4,000 1978–81.

Employment on new industrial estates

The new manufacturing employment will not be simply a direct transfer of established jobs from London to Ipswich. Firms that move to new and expanded towns have generally been growing rapidly. This growth provides both the incentive for the move and the resources to finance it. Such firms usually grow even more rapidly in the favourable conditions of a new or expanded town. Between 1960 and 1985 factories in the new towns round London had an average employment increase of six per cent. a year. A similar rate of growth in Ipswich would mean that to provide 16,000 new jobs in manufacturing industry by 1981, firms moving to the expanding town need only have some 10,500 employees at the time of moving.

New industrial land has to provide for existing factories in Ipswich that have to be relocated during the expansion to make way for new and improved roads and other uses, and also for those that may choose to move from a cramped central site with poor access to a more spacious one adjoining the primary road network in the new districts. We have assumed that land for a total of 3,000 jobs may have to be provided for this reason.

There is also a considerable amount of service industry (warehouses, depots, etc.) that is best located in industrial areas. This includes activities recorded under the following minimum flat headings used in the Census tables: 500, 705, 708, 810, 831, 832. Data for six towns similar in size to Ipswich in 1981 showed that these groups account for about 22 per cent. of total employ-

ment in service trades. Applying this proportion to the increase in service employment in Ipswich up to 1981 gives a figure of 6,400 service workers to be provided for on industrial estates.

Table E8 shows the components of employment in new industrial areas. In all, 28,400 jobs must be provided for.

E8 Jobs on New Industrial Estates

	1968–1981
New industrial sites of 1000	12,800
Subsequent expansion of new factories	6,800
Relocation of existing factories	3,800
Service industry	6,400
Total	28,400

Service employment in other areas

The same data for the six comparable towns suggest that about 44 per cent. of all jobs in services are likely to require location in town, district or local centres, and that the remaining 56 per cent. (22 per cent. being in industrial areas) would be widely scattered, especially in residential areas.

Forty-four per cent. of new service employment in Ipswich by 1981 is 12,500 jobs. These must largely be located in the town centre and the new district centres. It is shown in chapter 8 and appendix G that the capacity of the town centre to absorb additional employment will be limited, and much of it may be required for offices decentralised from London. As many as possible of the 12,500 new jobs must be located in the district centres. Their early establishment as flourishing shopping centres will contribute to this aim; so will the proposed location of the second new general hospital and the additional colleges for further education in or near the district centres.

III Land for industry

Neighbourhood industry

The reasons for proposing some industry in residential neighbourhoods were stated in chapter 8. It is necessary to make an estimate of the maximum amount of new in-

dustry that might be suitable for such locations. We approached this in two ways.

First, neighbourhood industrial sites will be attractive to firms employing a high proportion of married women for they will be living close by. Our estimates show that married women will account for about 21 per cent. of the total labour force. National data suggest that about 40 per cent. of these are likely to be working on industrial estates. This means they could account for about 16 per cent. of employment in new manufacturing industry. Not all married women working in factories would be in neighbourhood industrial areas; on the other hand, these areas would not employ only married women.

Secondly, neighbourhood industrial sites will be suitable for the smaller firms. In the London new towns about 20 per cent. of the labour force is in firms with 150 or fewer employees, and 26 per cent. is in factories with sites of three acres or less.

We conclude that the proportion of industrial employment in residential neighbourhoods would not exceed about a quarter of the total.

Industrial density

The continuing growth of new firms after they have moved to Ipswich means that the density of employment (workers per acre) on new industrial land will increase as towns expansion proceeds.

The initial requirement per worker has been estimated as follows:

Covered floor space	300 square feet
Open land	700 " "
Car parking	150 " "
Roads and landscaping	300 " "
Total	1,450 square feet

This is equivalent to 30 workers per acre gross. Thirty per cent. of each plot (excluding roads and car parks) would be occupied by buildings.

The covered area of 300 sq. ft. per worker was estimated as follows. Existing plants in Ipswich have an average of 300 sq. ft., existing plants in the London new towns have 260 sq. ft., and a number of plants in the Midlands surveyed by the Building Research Station have 250 sq. ft. The average of these is 280 sq. ft. But about a quarter of employment on industrial estates will be in service industries with about 600 sq. ft. of covered floor space per worker. Hence the average may be about 300 sq. ft.

A similar calculation for the final density was:

Covered floor space	400 square feet
Open land	140 " "
Car parking	180 " "
Roads and landscaping	180 " "
Total	600 square feet

This is equivalent to 60 workers per acre gross. Covered floor space has been increased from 300 to 400 sq. ft. per worker to allow for technological change. Plot coverage is assumed to be 48 per cent., it is at present about 40 per cent. in the London new towns. There is a constant relationship between the area required for roads and the total developed area.

These figures are averages. Deviations on individual plots and even on different industrial estates may very considerably. The greater the diversity of industry the more likely are these averages to be achieved over the whole of the development.

Assuming the rates of industrial growth experienced in the new towns (6 per cent. a year) land developed at a density of 30 workers per acre by 1971 could be expected to have a density of 40 workers per acre by 1978 and 50 workers per acre by 1981.

An increased incidence of shift working, or a higher ratio of office and research workers to the total labour force, could result in final densities higher than 60 workers per acre.

Required area

The following are the land requirements resulting from the estimates made in this appendix.

	Neighbourhood industry	Major industrial estates
Employment		
1976-1978	4,400	13,100
1978-1981	2,000	8,100
Total	6,400	21,200
Average		
1976-1978	122	361
1978-1981	26	38
Total	548	429

Appendix F

Neighbourhood land uses

In addition to housing, residential neighbourhoods may contain local services, industry and woodlands, the provision varying according to the size, location and topography of the neighbourhoods.

In calculating the amount of land required for neighbourhoods, separate acreages have been included for woodlands and neighbourhood industry; other uses have been allowed for by using a figure for gross residential density.

The net density in 1981 is likely to be about 46 persons per acre (chapter 11). We have used a figure for gross residential density of 41.6 persons per acre. Thus 15,000 people would require 326 acres net and 380 acres gross. The additional 34 acres might be allocated to the following uses:

	Acre
Primary and nursery schools	24
Recreational grounds	2
Three public houses	1
Club and group practice centre	1
Local shops with car parking	1
Local hearing places	1
Local parks and playgrounds	4

Each use includes the area of roads adjoining it. The actual relationship between net and gross density would vary from neighbourhood to neighbourhood according to the provision of local services (chapter 6) and the proportions of housing at different net densities. Sites for non-residential uses would be determined when each neighbourhood is designed in detail.

This appendix has four sections. The first estimates the total amount of personal movement to be expected in the expanded town, and discusses its distribution between different modes of travel (the modal split). The second estimates the amount of vehicular traffic between different parts of the town, and assigns it to each of the proposed links in the primary road network, showing what peak flows they should be designed to carry. The third section deals with public transport between the two new districts and Ipswich, and the fourth explains the traffic considerations that have helped to determine our preliminary proposals for the central area.

These studies have proceeded in parallel with the development of the Urban Structure Map for the reason the assumptions about future population and employment vary slightly from one section to another and do not always correspond with those embodied in the draft Basic Plan. These differences do not affect the general conclusions from the transport studies.

I Total movement and its distribution between modes of travel

The present position

There have been a number of surveys in recent years to investigate particular transport problems in Ipswich, but there has been no study of total movements in the town. Our commission did not include a full transportation survey, this would have been of limited value because the proposed expansion is on such a scale that it can alter the modal split and the geographical pattern of travel as well as total volume.

However, we have derived useful information from the following sources:

- i origin and destination surveys made by Ipswich County Borough Council in 1962 and 1963;
- ii the survey of traffic entering the town made by C. H. Dobbs and Partners for the Ministry of Transport in 1964;
- iii information on port traffic supplied by Ipswich Dock Commission;
- iv information on the use of public transport supplied by the County Borough Council and the bus companies;
- v information on car parking from the County Borough Council;
- vi the social survey by the Institute of Community Studies (appendix C);
- vii a selective study of journeys to work made by us in conjunction with several large local employers.

We estimate that in 1963 about 165,000 *Anhad* (a two-way) person-trips were made in Ipswich on a normal weekday - 1.3 trips per resident. In 1960 there had been about 1.08.

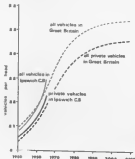
Future estimates

The amount of travel will increase as a result both of the growth of population and of rising living standards, especially the more widespread ownership of cars (figure 5d). Journeys to work can be readily estimated from the projections of employment. Journeys for other purposes have been estimated using the technique set out in a paper 'The use of synthetic surveys in traffic planning' presented to the Oslo Transportation Institute by Dr. Lester A. Noel in 1965. It is likely that in 1981 there will be about 1.8 *Anhad* person-trips per resident.

The population of the expanded town may then be some 225,000, so the daily volume of travel could be of the order of 405,000 *Anhad* person-trips - almost a threefold increase over 1963 (figure 101).

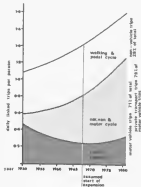
99 The likely growth in vehicle ownership

This is based on national projections made by the Road Research Laboratory.



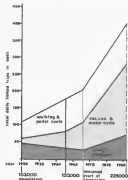
100 Estimated trips per head by different modes of travel

The curves up to 1966 are based on data from a variety of local sources. The projections are in part extrapolation and in part a reflection of policies recommended in the report.



101 Estimated total trips by different modes of travel

This diagram takes into account the modal split on the previous graph and the expected increase in population.



Different modes of travel

A fundamental question for planning is the *modal split* of these journeys between different means of travel. Figure 100 shows the changing modal split in Ipswich between 1960 and 1963. As vehicle ownership has increased so has the total number of trips per person, with a higher proportion made by car or motor cycle, and smaller proportions on foot, by pedal cycle and by bus. One of the objectives of the draft Basic Plan is to arrest and if possible to reverse this trend, by creating a town in which as many journeys as possible can conveniently be made on foot, by pedal cycle, or by bus. This will minimise the need for highway construction and help to maximise the quality of the environment.

The location of workplaces and service centres close to homes will give many people the opportunity of moving about the town on foot or by pedal cycle.

The use of buses by people who have a choice of transport, i.e. the growing number of car owners, depends on many factors, of which at least two important ones can be influenced by the form of the town – the distance from homes, workplaces and service centres to bus stops, and the frequency of services. The linear shape of the new districts means that most people will live within a quarter of a mile of a bus route and many much nearer. It also means that the volume of demand is concentrated on a few routes which should thus be able to have frequent services.

We have assumed that in 1981 some 29 per cent of all trips would be made on foot or by pedal cycle. Of the remaining 71 per cent, three-quarters would be by private vehicle and a quarter by bus.

Calculations in section III show that if this modal split were achieved it would require the following frequencies of bus services in the new districts and between them and the existing town.

	Peak (minutes)	Off peak (minutes)
Expanded district centre – town centre	1½	3½
Primary roads in district	2½	5½
Expanded district centre – town centre	1	2
Primary roads in district	3	8

The possibility of such high frequencies tends to confirm that the assumed modal split is realistic, and suggests that people may continue to make about a quarter of their longer journeys by bus even when many more own cars.

Management can assist in the achievement of this objective by a number of measures, including

- ensuring that adequate bus services are available at each stage of the expansion – even though this may not be economical at all times;
- arranging convenient connections for journeys beyond the town centre;
- steps to ensure that waiting for and riding in buses are convenient and comfortable;
- full information to newcomers of the services available;
- convenient car parks at district centres to encourage 'park and ride' journeys;
- season tickets, allowing for a change of bus where necessary;
- a fare structure that allows people to travel in either direction round the bus loops in the new districts for the same price;
- short lengths of bus-only road in the town and district centres, and priority for buses at certain intersections, to ensure fast and punctual services.

It follows from these considerations that bus services throughout the expanded town should be the responsibility of a single operator, preferably the local authority.

Our calculations have used the simplified assumption that a quarter of all vehicles trips will be by bus, whatever the time and purpose of the journey. In practice, this is not likely to be so. With the services we envisage it is possible that more than a quarter of journeys to work will be made by bus. On the other hand the proportion for other journeys – especially where several members of a family travel together – may be lower. This is unlikely to reduce the frequency of bus services below the estimated level, since our calculations assume that all buses are full between the district centre and the town centre, and an economical service can be operated at lower loadings.

We have also assumed that the *modal split* will be the same for all journeys, whatever their origin or destination. In practice, a much higher proportion of trips to the central area is likely to be made by bus than to other destinations. This is because there will be direct and more frequent services with stopping places close to all the major uses, and because there will be a limit on the number of car parking spaces. It is most important to encourage the greatest possible use of buses for journeys to the town centre because it is there that it is most difficult to increase the capacity for private vehicles. In the fourth section of this appendix we have assumed that 62 per cent. of vehicular trips to work places in the central area will be made by bus. There are also likely to be variations in the *modal split* between the expansion area and parts of the existing town. The proportion of trips from the new districts made by bus may be higher than the average for the whole town, while that of trips from the more remote parts of existing Ipswich may be lower.

Figure 101 shows that on our assumptions the daily number of *link* (two-way) trips by public transport would increase from 31,000 in 1963 to 73,000 in 1981, the number of trips by private vehicles from 53,000 to 215,000 and the number of trips on foot and by pedal cycle from 72,000 to 117,000.

If the number of trips by private vehicle were significantly lower than these estimates there would be no difficulty in increasing the frequency of bus services, and savings could be made in highway construction by building some roads with a smaller capacity than that now envisaged. On the other hand, the plan does assume an upper limit to the number of trips by private vehicle, mainly owing to the limited capacity of the east-west cross-town roads and the cost and difficulty of increasing their capacity. If bus services are not attractive enough to limit the use of private vehicles to the level we have assumed, then consideration would have to be given to restricting its further growth by, for instance, the level of parking charges.

Commercial traffic

Our estimates of traffic are for personal journeys only. No estimate of commercial traffic has been made because it forms a relatively small part of the total and does not therefore need to be considered in deciding the general shape and capacity of the road network. However, the needs of commercial traffic have influenced some of the proposals, e.g. for connections between the regional roads and the town network to serve the port and the industrial areas. The special requirements of commercial traffic must be further studied when making more detailed plans for the central area, the district centres, and the industrial areas.

II The primary road network

The study had three objectives:

- i To determine the network necessary to carry the likely traffic flows in the expanded town, and to pinpoint critical areas where concentrations of traffic may be greatest
- ii To confirm that it is feasible for most junctions to be controlled by traffic lights, avoiding the need for multi-level interchanges.
- iii To test the statement in the first report that future flows of through traffic would not in themselves justify by-passes around Ipswich

Method

The road system has been designed by successive approximations. Assignments of traffic to a preliminary network (figure 102) revealed shortcomings in the road system and the land use pattern. Both were changed and the assignments repeated. This second test is the one described here. As a result of it, further small changes were made to produce the network shown on the Urban Structure Map.

Separate estimates were made for traffic with both origin and destination in the proposed designated area (internal traffic); for traffic with origins inside and destination outside, or vice versa (internal-external and external-internal traffic); and for through non-calling traffic (external-external traffic).

Internal traffic

This was estimated in two stages. The first stage was to estimate the number of trips between each pair of 58 zones into which the expanded town was divided (figure 103). The second stage was to apply the assumed *modal split*, discard non-vehicular trips, convert the vehicular trips into passenger car units (PCUs), and assign these to each section of the network (figure 104). The basis of the calculation is the *person-trip*, i.e. the journey of one person from origin to destination, e.g. from home to workplace. The origin and destination are described as *trip-ends*, the origin being the generator, e.g. home, and the destination the attractor, e.g. workplace. *Home-based* trips result in a return journey on the same day, the two trips (described as one *linked* trip) account for at least 80 per cent. of all trips. Up to 20 per cent. of trips are non-home-based, e.g. a journey from one workplace to another. They do not necessarily result in a return journey. We were not able to forecast the origins and destinations of non-home-based trips so we simply scaled up the number of home-based trips to give the correct total.

A number of mathematical models have been proposed to predict the distribution of trips between generators and attractors. We used a model of the form

$$T_{ij} = K \cdot G_i \cdot A_j \cdot D$$

where T_{ij} is the number of trips between zones i and j

K is a constant

G_i is the generation of trip ends in zone i

A_j is the attraction for trip ends in zone j

D is a distance function of the form $\frac{1}{\text{distance}^n}$ or $\frac{1}{\text{distance}^n + 1}$

The distance function expresses the extent to which the attraction of a trip end (based on e.g. the number of jobs in an employment zone) for a given generation of trips (based on e.g. the population in a residential zone) is modified by the distance between the two zones.

102 The first pattern tested by the preliminary traffic study

This basic land use pattern and its accompanying road system were subject to an analysis in which likely flows were calculated for each length of road up to the end of the century. The analysis revealed deficiencies and adjustments were made



103 Origin and destination zones

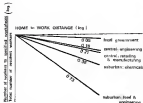
This network contains the adjustments following the preliminary traffic study, and formed the basis for the subsequent traffic calculations described in this appendix.



104 Internal-internal traffic flows 1981

These flows would be generated by trips starting and finishing within the expanded town. These and later diagrams exclude commercial vehicles.





In order to test this model, and to obtain some guidance in assigning a value to n , we made a limited survey of travel to work in Ipswich in 1988. Seven large employers in different industries and various locations co-operated by circulating questionnaires to their staff. Over 5,000 completed questionnaires were analysed. The number of workers travelling to each workplace from each part of the town was compared with the total number of workers living in that part of the town, to determine the deterrent effect of distance. This was expressed as straight line distance¹⁰. Values of n fell into

two distinct groups: for firms in the town centre n was 0.2 or 0.3, while for firms on the outskirts it was about 0.75. The difference reflects the greater accessibility of the centre firms. The results are shown in figure 106.

The value of n may be expected to increase with the size of the town, with greater dispersal of employment, and with greater use of private vehicles. There is evidence in the London Travel Survey that the value of n also varies with the purpose of the journey, being lowest for travel to work and highest for travel to shopping centres. We have used $n = 1.0$ for journeys to work and $n = 1.5$ for all other journeys.

In the survey of Ipswich workplaces the deterrence factor was expressed as straight line distance¹⁰. However, with the establishment of a highway hierarchy where average speed will vary widely between different roads, journey time is likely to give a more realistic result. Average running speeds for each section of the network have been used to determine the quickest route between each pair of zones (figure 108).

Table G1 shows the generation and attraction values that were fed into the computer. The generation value is the estimated population of each zone, the attraction value for journeys to work is the estimated employment, and the attraction value for other trips is based on the facilities likely to be available.

G1 Trip Generation and Attraction Values

Zone	Generation (population)	Attraction Non-work	Work
1	4,100	2,010	—
2	5,000	6,600	—
3	5,000	8,800	—
4	4,800	6,700	—
5	5,800	12,300	—
6	7,300	6,800	—
7	5,000	6,100	—
8	6,000	7,300	—
9	6,000	7,300	—
10	6,100	10,000	—
11	6,300	10,000	—
12	7,400	6,000	—
13	6,800	10,300	—
14	7,000	3,700	—
15	10,000	12,100	—
16	9,300	7,600	—
17	9,000	5,700	—
18	6,000	5,700	—
19	7,500	8,100	—
20	1,800	2,200	—
21	3,800	4,700	—
24	7,300	6,900	—
25	1,100	1,200	—
27	4,400	7,700	—
28	8,700	16,500	—

Zone	Generation (population)	Attraction Non-work	Work
29	3,800	4,400	—
30	5,700	4,800	—
31	1,300	2,100	—
32	2,100	2,600	—
34	8,000	5,100	—
35	4,700	5,700	—
36	6,900	9,300	—
37	3,800	4,800	—
38	6,700	6,100	—
39	7,800	3,800	—
44	—	—	5,100
45	—	—	8,500
46	—	—	8,800
47	—	—	8,700
48	—	—	8,800
50	—	—	8,800
61	—	—	3,300
62	—	—	4,300
63	—	—	3,900
64	—	—	8,400
68	—	—	4,400
69	—	—	4,100
67	—	72,800	26,100
68	6,100	17,500	7,200
69	4,000	17,600	7,200



Employment in residential areas has been ignored, we made the simplified assumption that all journeys to work in residential areas would be on foot or by pedal cycle. In practice, some of these trips will be by bus or private vehicle.

It was assumed that in 1981 there would be the following daily numbers of linked trips per head of the population in the expanded town:

Work	0.6 (assumes that a fifth of all employees go home for a midday meal)
Shopping and business	0.6
Social and recreational	0.4
Education	0.3
Total	1.9

Estimated trips between zones were iterated by the computer to achieve an accuracy of at least 96 per cent in the numbers of inward and outward trips for each zone. This gave zone-to-zone matrices for work and non-work trips by all modes of travel in a whole day.

For designing the road network it was necessary to estimate the greatest hourly flow resulting from these movements. It was assumed that ten per cent of daily travel would occur in the peak hour.

The final step was to convert person-trips into vehicular flows. We assumed that all intra-zonal journeys of under 2.5 minutes travel time (if made by private vehicle at the assumed speeds), and 50 per cent of these between 2.6 and 4.5 minutes, would be made on foot or by pedal cycle. The remainder would be vehicular trips—25 per cent by bus, at 17 persons per passenger car unit, and 75 per cent by private car, van or motor cycle, at 1.33 persons per passenger car unit.

The resulting peak hour flows in passenger car units are shown in figure 104.

Internal-external and external-internal traffic

Estimates had been made of the increase in commuting up to 1981, showing that inward and outward journeys to work would be about doubled. But as more of these would be made by private vehicle we increased the 1964 peak hour flows (for all trip purposes) recorded in the Dobbie survey by 200 per cent. These were distributed between the radial roads in the same proportions as the 1964 flows, no adjustments being made for changes resulting from the sub-regional strategy recommended in our first report.

Within the town these were distributed to the zones according to their attraction and generation values without regard to distance. It was assumed that three-quarters of the peak hour trip would be journeys to work. The resulting flows are shown on figures 107 and 108.

External-external traffic

Only records of the whole day flows of through traffic in 1964 were available from the Dobbie survey. These were increased by 150 per cent and assigned to the quickest route between their entry and exit points.

It was assumed that nine per cent of the daily flow of through traffic would occur during the peak hour for internal traffic. But as it might have a directional bias that was not known, figure 109 shows six per cent of daily through traffic in each direction. It confirms that through traffic flows in 1981 would not in themselves justify the construction of by-passes around Ipswich.

107 External-internal
traffic flows
1981



108 Internal-external
traffic flows 1981



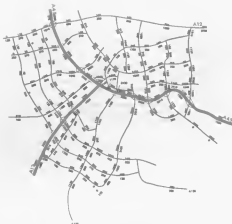
109 External-external traffic flows 1981

This traffic does not enter or leave the urban area and therefore represents the component which could use a bypass if one were built.



110 Total traffic flows 1981

This is made up of all the flows shown on the previous diagrams.



Total traffic

The three components described above have been combined to give the total assumed peak hour flows (exclusive of commercial traffic) shown in figure 110. It is likely that traffic flows in the new districts would be somewhat larger than those shown, and flows on some of the cross-town roads somewhat smaller, because by 1981 the enlargement of the labour market will not have had its full effect in generating cross-town movements; more of the newcomers will be working in their own districts than in later years.

The road network

Figure 81 shows the required capacity of each link in the road network according to Ministry of Transport standards.

The most heavily loaded length of road would be the dock bridge on the proposed new A45, which would require four lanes in each direction.

Three lanes in each direction would be required on the rest of the A45, the A12, Wymondley Road and the western side of the proposed bus round the town centre.

All the other roads feeding the A45, the central road through Beaulieu district and its continuation along the northern edge of Belstead district, Hadleigh Road and Birdfield Drive would need two lanes in each direction.

The rest of the primary network in the new districts could consist of single carriageway roads, but a substantial length of dual carriageways would be needed in the existing town.

Light-controlled intersections would be adequate except at access points to A12 and A45 and at the district centres.

There would be relatively small flows of traffic at the outer ends of Beaulieu and Belstead because the development of the new districts would not be completed until after 1981.

III Bus services

Fragrances

It followed from the assumptions described in section II that for every 118 passenger car units assigned to a length of the primary network there would be one bus carrying 61 passengers. All vehicular traffic was assumed to take the quietest route but regular bus services will in fact be routed via the district centres and the direct road from there to the town centre. The following calculations were made to estimate the probable frequency of bus services in 1981.

5. Beaulieu (District centre to town centre)

i. Peak hour (a.m.)

$$\begin{aligned} \text{Total flow} &= 420 + 310 + 1,315 + 1,630 \\ &+ \frac{1}{2} \text{ locally generated flow on A12} \frac{(3,790 - 2,340)}{2} \\ &= 3,875 + 715 \\ &= 4,590 \text{ p.c.u.s.} \\ \therefore \text{Total buses on Hadleigh Road} &= 4,590/118 \\ &= 39 \text{ (in one direction)} \\ &= 1 \text{ bus/1.6 mins.} \end{aligned}$$

Some of these will be country buses from the Hadleigh area, which will form a percentage of the 830 p.c.u.s. travelling towards Ipswich on A1071.

$$\begin{aligned} \text{Country buses in 1981} &= 830/118 \text{ is the peak hour} \\ &= 7 \end{aligned}$$

$$\therefore \text{number of buses on primary network in Beaulieu district} = 39 - 7 = 32$$

Assuming that the buses follow the routes shown in figure 83 the minimum frequency in each direction on each of the three main north/south roads would be 1 bus/5.5 minutes. Buses in each direction run to the district centre and the town centre.

ii. Off-peak

Assume buses operate for a 16-hour day, and that the total flow/16 day into Ipswich = 10x peak hour flow (approx.)

$$\therefore \text{Total bus flow/16 hour day into Ipswich} = 10 \times 39 = 390.$$

A large number of these will operate during and immediately before and after the peak hours, i.e. assume:

$$7 - 8 \text{ a.m.} = 23 \text{ buses} \quad 4 - 5 \text{ p.m.} = 20 \text{ buses}$$

$$8 - 9 \text{ a.m.} = 37 \text{ buses} \quad 5 - 6 \text{ p.m.} = 37 \text{ buses}$$

$$9 - 10 \text{ a.m.} = 23 \text{ buses} \quad 6 - 7 \text{ p.m.} = 20 \text{ buses}$$

$\therefore$ These hours account for 180 buses.

$$\therefore \text{Average bus flow during remaining 10 hours} = 180/10 = 18 \text{ buses/hr.}$$

$$\therefore \text{Frequency of buses on Hadleigh Road} = 1 \text{ bus/32 mins.}$$

$$\text{Average country bus frequency} = 1 \text{ bus/30 mins.}$$

$$\therefore \text{Number of buses/hr. on primary network} = 18.$$

The minimum frequency in each direction on each of the three main north/south roads will be 1 bus/17 minutes.

2. Belstead (District centre to town centre)

i. Peak hour

Using the same method as for Beaulieu.

$$\therefore \text{Buses on Birdfield Drive} = 65$$

Some of these will be country buses from A127 and A138, approximately 1,200/118 = 10.

Some 1,600 of the p.c.u.s. on Birdfield Drive are generated from the area of Cherry between Belstead district centre and A45. This area should therefore be served by 1,600/118 = 14 buses. These should start at the district centre.

$$\therefore \text{Frequency of buses from Belstead district centre to town centre} = 1 \text{ bus/min. (approx.)}$$

$$\text{Number of buses on primary network in Belstead district} = 55 - 24 = 31.$$

$$\therefore \text{Minimum frequency in each direction on each of the three main east/west roads will be 1 bus/6 minutes.}$$

ii. Off-peak

Making the same assumptions as for Beaulieu.

$$\text{Total bus flow/16 day into Ipswich} = 650.$$

$$\text{Average flow outside peak hours on Birdfield Drive} = 26/\text{hour} = 1 \text{ bus/2 mins.}$$

Of these 6/hour would serve Cherry, and 5/hour would be country services.

$$\text{Thus buses on Belstead primary network} = 26 - 11 = 15/\text{hour.}$$

The minimum frequency in each direction on each of the three main east/west roads will be 1 bus/12 minutes.

Size of fleet

The estimated frequencies would entail 324 round trips to Bramford and 446 round trips to Belstead and Chantry, a total daily mileage of 8,412. Approximately 70 buses would be on the road at any time, and each would cover 120 miles a day. Allowing for 30 per cent of the fleet to be on stand-by and under repair, 100 buses would be required. At present Ipswich Corporation has 68 buses, of which about 38 are in use at any one time. Each bus averages 110 miles a day.

IV Central area

This study sought to establish in broad terms a circulation and car parking pattern for the town centre, compatible with the proposal to route the new A45 south of the War Dock (i.e. outside the town centre). The pattern must satisfy the two main objectives of preserving the scale and character of the heart of the town and maintaining its function as the principal sub-regional centre.

Traffic using car parks

For shoppers:

5,500 spaces within 5 minutes' walk of Westgate Street, Tavern Street, Car Street and the Butter Market.

For workers:

Assume employment in four main zones:

Shops	8,000
Offices	17,000
Education	1,800
Industry and warehouses	3,600
	27,600

Assume 30 per cent journeys to work by car, a low figure because central area will have good bus services (27 per cent Leicester central area 1983).

Assume 1.6 persons per car.

Then parking spaces required:

Shops	1,200
Offices	3,500
Education	200
Industry and warehouses	800
	5,500

For students:

Assume 2,500 at Civic College, and 1 car per 2.5 students (University of Bath plans 1 car per 2.3 students). Then 1,000 spaces required.

If a polytechnic were built in Ipswich then a further 1,200 spaces might be required.

Car park areas assigned to road network on following assumptions:

Attraction of car parks for vehicles from a given radial road proportional to number of spaces and population served by radial.

Period 16.30 to 17.30 is peak for traffic leaving shoppers' and workers' car parks.

80 per cent of work trips in peak hour (Leicester 65 per cent), 10 per cent students, Shoppers' car parks empty once an hour.

Other traffic

Assume 20 per cent of total peak hour traffic would be in addition to journeys to work, shops and colleges.

Buses – assume 50 per cent of journeys to work by bus (52 per cent in Leicester 1983) 80 per cent journeys in peak hours. Two-thirds of trips in double-decker buses with average of 60 passengers, one-third in single-deckers with 30 passengers.

Then 180 buses in peak hour, say 200 to allow for non-work journeys. This is equivalent to 900 passenger car units.

Total traffic

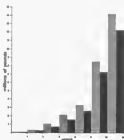
Assignments of these estimated flows showed that there would be an east-west flow of approximately 5,500 p.c.u.s in one direction during the peak hour. This would require six lanes in each direction across the town centre if all intersections were controlled by traffic lights.

The minimum number of lanes that should be provided on the line of Crown Street is two in each direction. The proposed A45 could probably provide the equivalent of one lane in each direction for town centre traffic (less than one lane of motorway standard). The remaining three lanes in each direction could be provided either on a single two-way road or two one-way roads. A two-way road could not be located anywhere south of the shopping centre without destruction of historic buildings and grave damage to the scale of the town centre. Two one-way roads capable of carrying the expected flows could be created by the widening of existing streets without undue changes in the fabric and scale of the town.

The network shown on figure 50 (chapter 8) is therefore put forward as a base for further detailed study of the town centre.

118 Expected annual expenditure and income

This chart shows that the annual outgoings (grey) are likely to exceed the revenue (black) until capital is repaid if all costs and returns are based on 1966 values. In real terms revenue should exceed outgoings before 1981. The figures relate only to development in the expansion areas.



Reference was made in chapter 21 to the division of costs between those directly attributable to the expansion areas and those attributable to both the expansion areas and the existing town. The latter include:

- i the A12 and A46 within the proposed designated area;
- ii other primary roads in the existing town;
- iii that part of new industrial development required for the relocation of existing enterprises and for the employment of people living outside the expansion areas.

The following items are not included in either of the cost estimates:

- a compensation to the Dock Commission and port users for loss of access to the West Dock by larger vessels;
- b any works in the central area;
- c housing renewal in the existing town;
- d roads outside the proposed designated area, e.g. A137 south of Beletad;
- e any storage reservoir or other works required to increase the water supply;
- f expansion of existing factories;
- g the proposed teacher training college;
- h the proposed new railway freight terminal;
- i the proposed sports centre;
- j the proposed new quarry;
- k any proposals not included in the four stages of development shown on the programme maps.

The financial appraisal described in this appendix relates to the construction and land costs for the proposed expansion areas, i.e. the Beletad and Bremford districts, and the Chantry extension.

Assumptions

1 Population growth

The population projections are the basis of the financial statement; costs and incomes are those that would arise if the population increase followed the pattern and the rate described in appendix B.

2 Costs

All estimates are based on price levels current at the end of 1966. No allowance has therefore been made, in the general tables, for increased costs between the beginning and the end of the plan period.

The following costs have been excluded from the estimates:

- i bridging finance and letting fees;
- ii furnishing, equipment and machinery;
- iii special site and soil conditions.

3. Financing methods

Cost estimates are capital costs, but returns are generally assessed in terms of rents, or annual recurring receipts. Capital will be borrowed at a fixed rate of interest for a standard repayment period. We have assumed that the annuity method of repayment will be used throughout. The rate of interest used is 6½ per cent and the loan repayment period 60 years.

To convert income from annual or recurrent revenue to once-and-for-all capital terms we have used years' purchase figures currently applicable to the particular revenue-producing use.

Using the assumptions outlined above we have been able to express all costs and all income in two kinds of statements—those in capital and those in revenue terms.

4. Housing subsidies and grants

The subsidy under the Housing Subsidies Act 1967 is calculated as the difference between an agreed rate of borrowing, in this case 6½ per cent, and a 4 per cent rate. Houses in the expansion areas will also attract a discretionary grant under the New Towns Act 1955. This has been taken to be £24 per annum for each dwelling for ten years.

5. Rental income

The sources of assumed rental income are housing, shops, factories, offices, petrol filling stations, public houses and hotels. Rental levels are those generally prevailing in Ipswich and surrounding towns in 1965. Rents for housing do not include any allowance for management and maintenance and hence are not the actual rents to be paid by tenants.

6. Housing standards

Parker Morris standards have been adopted as the minimum for housing and the current Housing Cost Yardstick, with an upward tolerance of 10 per cent, used in assessing costs. Three standards of housing have been assumed: majority, which is exactly at the Housing Cost Yardstick figures; intermediate, which is 10 per cent higher in cost than the Yardstick figures, and high. The first two levels, we have assumed, are subsidy earning.

7. Owner-occupation

By the end of the plan period 50 per cent of all houses in the expansion area have been assumed to be owner-occupied. The build-up to this target is one of only a small proportion of houses for owner-occupation in the initial years, gradually increasing so that at the end of the plan period the majority of houses are being built for owner-occupation. Returns from owner-occupied houses are sale prices.

8. Highway grants

We have made the arbitrary assumption that half of the town distributor roads shown on the Urban Structure Map will attract a Ministry of Transport grant as principal roads. Since we do not know which roads these might be, we assumed that 50 per cent of the total cost would be grant-aided to the extent of 75 per cent.

Division of costs

Separate calculations have been made for each of the forty types of constructional work shown in table H1. Estimates of professional fees have also been made. A computer programme has been developed to analyse costs and returns.

H1 Division of Costs

Reference	Type of constructional work
01	Roading in neighbourhoods
02	Roading in district centres
03	Roading
04	Industry in neighbourhoods
05	Industry in estates
06	Offices
07	Shopping in district centres
08	Shopping in local centres
09	Isolated shops
10	Public houses
11	Hotels
12	Community centres
13	Youth clubs
14	Local evening centres
15	Libraries
16	Churches and religious centres
17	Health services (inc. hospitals)
18	Welfare services
19	Group practice centres
20	Police and fire stations
21	Site works (inc. roads) for residential estates
22	Site works (inc. roads) formerly local authority industry
23	Site works (inc. roads) for industrial estates
24	Site works (inc. roads) for district centres
25	Site works (inc. roads) for local centres
26	Garages
27	Steeplechase playing fields
28	Public playing fields
29	Other public open space
30	Golf courses
31	Woodlands
32	Commercial buildings
33	Hospital
34	Town distributor roads
35	Greenage
36	Water distribution
37	Gas distribution
38	Electricity distribution
39	Undergrounding of power lines
40	Telephone exchanges

Conclusions

The tables set out below are summaries of the detailed calculations of cost and income made under each of the forty heads. The full calculations, in the form of computer print-outs, have been given to our clients. Figures are rounded to the nearest thousand pounds.

H2 Analysis of Costs

Year	Total Capital Cost	Loan repayments over 50 years at 5% steady state
	£M	£M
1	0.451	0.333
2	5.981	0.338
3	11.333	0.742
4	16.952	1.039
5	17.055	1.135
6-10	28/728	5.237
11-15	54.275	5.589

H3 Analysis of Revenues

Year	Annual Income	Capitalised Income	Sales	Annual Equivalent of Sales
	£M	£M	£M	£M
1	0.000	0.000	0.001	0.003
2	0.007	1.172	1.836	0.126
3	0.008	3.482	2.821	0.198
4	0.003	4.753	4.028	0.328
5	0.001	7.845	4.900	0.333
6-10	2.856	25.453	25.818	1.707
11-15	2.055	27.386	32.868	2.155

H4 Analysis of Gains and Subsidies

Year	Subsidies	Capitalised Subsidies	Gains	Annual Equivalent of Gains
	£M	£M	£M	£M
1	—	—	0.012	0.001
2	0.016	0.236	0.005	0.002
3	0.021	0.854	0.048	0.022
4	0.016	0.914	0.026	0.008
5	0.108	1.542	0.076	0.005
6-10	0.488	7.457	1.508	0.100
11-15	0.614	7.255	2.918	0.185

H5 Balances in Capital Taxes

Year	Capital costs	Capitalised income and sales	Refunds	Capitalised subsidised gains	Balance allowing for capitalised subsidies and gains
	£M	£M	£M	£M	£M
1	0.451	0.001	— 0.390	0.012	— 0.228
2	5.981	0.068	— 2.013	0.272	— 1.741
3	11.333	0.012	— 4.529	0.732	— 4.158
4	16.952	0.685	— 5.723	0.982	— 8.791
5	17.055	12.967	— 4.895	1.530	— 2.669
6-10	28.728	54.152	— 24.816	8.368	— 15.825
11-15	54.275	53.607	— 24.358	9.600	— 14.898

H6 Balances in Revenue Terms

Year	Annual costs	Annual income	Balance	Subsidies and annual equivalent of grants	Balance following for subsidies and annual equivalent of grants
	£M	£M	£M	£M	£M
1	0.033	0.013	-0.019	0.001	-0.010
2	0.330	0.223	-0.116	0.020	-0.096
3	0.747	0.476	-0.271	0.086	-0.215
4	1.030	0.719	-0.310	0.073	-0.236
5	1.135	0.993	-0.141	0.114	-0.027
6-10	5.337	3.315	-1.922	0.060	-0.662
11-15	5.936	4.283	-1.654	0.790	-0.624

The following two tables reproduce the results in tables H5 and H6 but accumulate the annual totals. The total capital cost shown in table H7 differs from the

figure in chapter 21 since it includes land and construction costs for that portion of industrial development that is not seeded purely for newcomers.

H7 Balances in Capital Terms (Cumulative)

Year	Capital costs	Capitalised income and sales	Balance	Capitalised subsidies and grants	Balance following for capitalised subsidies and grants
	£M	£M	£M	£M	£M
1	0.481	0.301	-0.180	0.012	-0.239
2	8.672	3.270	-5.402	0.054	-5.319
3	16.808	6.663	-10.145	1.019	-9.329
4	30.107	10.241	-19.866	1.978	-17.887
5	40.243	20.028	-20.215	3.496	-16.719
6-10	128.570	69.201	-59.369	12.662	-46.707
11-15	213.248	149.135	-64.113	22.032	-42.081

The adverse balances accumulated by the end of the plan period are referred to in chapter 21 where it is shown that when allowance is made for likely annual increases in

the level of costs and incomes, a favourable balance is achieved.

H8 Balances in Revenue Terms (Cumulative)

Year	Annual costs	Income	Balance	Subsidies and annual equivalent of grants	Balance following for subsidies and annual equivalent of grants
	£M	£M	£M	£M	£M
1	0.033	0.013	-0.019	0.001	-0.010
2	0.378	0.236	-0.142	0.021	-0.121
3	0.716	0.713	-0.003	0.076	-0.029
4	0.928	1.432	0.504	0.147	0.651
5	0.942	2.418	1.476	0.351	1.827
6-10	4.675	8.935	4.260	0.633	4.893
11-15	14.185	10.613	-3.572	1.567	-2.005

Figure 30 (chapter 21) shows the likely breakdown of capital costs over the construction period, and figure

111 shows a possible relationship between annual expenditure and income.

We are grateful to the officers of the following bodies for their comments on various aspects of the plan:

Ipswich County Borough Council
 Ministry of Housing & Local Government
 East Suffolk County Council
 Safford Rural District Council
 Gipping Rural District Council
 General Post Office
 Ministry of Public Building and Works
 Ministry of Transport
 Location of Offices Bureau
 Ministry of Labour
 Board of Trade
 Department of Education and Science
 Ministry of Health
 Executive Council (Medical) for Borough of Ipswich
 East Anglian Regional Hospital Board
 Ipswich and East Suffolk Group Hospital Management Committee
 Planning Committee, Ipswich and East Suffolk Hospital
 Suffolk County Constabulary
 Suffolk and Ipswich Fire Service
 Nature Conservancy
 Forestry Commission
 National Ports Council
 Ipswich Dock Commission
 British Railways (Eastern Region)
 Eastern Counties Omnibus Company Limited
 Central Electricity Generating Board
 Eastern Electricity Board
 Eastern Gas Board
 East Suffolk and Norfolk River Authority
 Essex River Authority
 Ipswich and Suffolk Licensed Trade Association
 The Suffolk Commercial Committee
 Inland Revenue Department (District Valuer)

Some of the information and advice obtained from the societies and individuals listed in the first report has also been helpful in preparing the draft Basic Plan, and others have subsequently given their views.

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General Register Office	Census of Population: County Reports, Description and Work-place and Household Composition Tables	1961 & 1961
Board of Trade	Census of Distribution	1961
Ministry of Labour	Family Expenditure Survey	1966
W. Beckerman and others for the National Institute of Economic & Social Research	The British Economy in 1975	1966
J. B. Cullingworth	English Housing Trends (occasional papers on social administration, No. 18)	1965
Colin Clark	"Employment in New Towns" (The Town Planning Institute Journal)	January 1966
John Boreham	"The Pressure of Population" (New Society)	2nd March 1966
Ministry of Housing & Local Government	Expansion of Ipswich — deligation proposals, Consultants' study of the town in its sub-region	1966
Ministry of Housing & Local Government Central Housing Advisory Committee	Older homes — a call for action	1966
Ministry of Transport	Circular No. 8/66, The Highway Review	1966
A Study prepared for the Department of Economic Affairs	Office development outside the south-east	1966
Ministry of Housing & Local Government	Circular No. 36/67 Housing Standards, Costs and Subsidies	1967
Department of Education & Science Central Advisory Committee for England and Wales	Children and their primary schools	1967

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Proposed Urban Structure

